Telephony.

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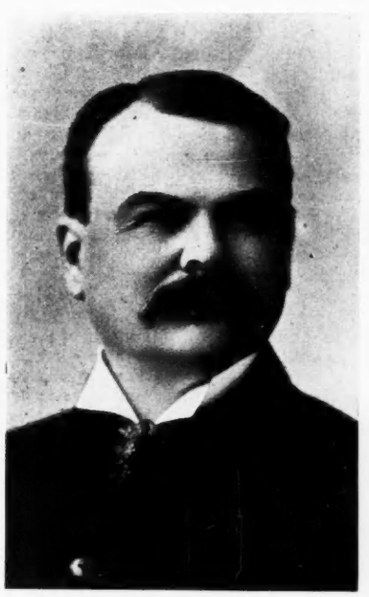
National-Interstate Telephone Convention

THE convention of the National-Interstate Telephone Association, held at the Auditorium Hotel, in Chicago, June 20, 21 and 22, will pass into history as one of the largest and most interesting meetings of Independent telephone men since the inception of the great movement. But for the tragic death of S. P. Sheerin at the beginning of the initial session on the first day, the convention would undoubtedly have been the most enthusiastic and altogether the most successful ever held. The sudden and shocking demise of this widely known Independent leader cast a gloom over the meeting that could not be wholly dispelled and made itself felt throughout the entire proceedings; yet in spite of this sad incident the convention was productive of good results, which will prove of great and lasting benefit to the cause in general.

JAMES B. HOGE, PRESIDENT.



THEODORE GARY, VICE-PRESIDENT.

Including the delegates, operators, manufacturers, supply men and their assistants there were fully 700 in attendance during the three days the convention was in session. They came from all parts of the country. The exhibits were the most pretentious ever made on a like occasion, there being nearly seventy individual firms that made displays, several of the exhibitors taking two rooms each, while one concern held forth in one of the immense parlors and another occupied the capacious writing room just off the main lobby of the hotel. Both the manufacturers and those having the convention proper in charge showed great enterprise, furnishing the nucleus for the greatest and most fruitful meeting in the history of Independent telephony.

TUESDAY MORNING SESSION.

The convention was called to order at 10 o'clock a. m. by President James B. Hoge of the National Independent Telephone Association, who introduced Col. J. D. Powers of the Home Telephone Company of Louisville, Kentucky, and chairman of the executive committee, as temporary chairman of the convention. Col. Powers, in taking the chair, said:

Gentlemen of the Interstate and National Associations—now the National-Interstate Association: As chairman of the executive committee, I assume the responsibility and duty of temporary chairman of this convention of the association. You will understand that we are not undertaking to usurp all the authority which will be lodged in you when you get your machinery properly working, but the executive committee will turn over to you at 12 o'clock to-day, making it a special order, this convention and its general proceedings, and, after consideration, into the hands of the regular officers that you may elect, and with a view that each state is asked to send to the chair in the course of the succeeding hour or half hour, or as soon as convenient, the name of some one gentleman to act on the committee on nominations; and then the committee on nominations, after the announcement is made of the committee, will take their own action and make their report here at 12 o'clock. That is a special order for the election of officers.

Gentlemen, allow me to congratulate you on your presence here to-day with this new organization. I later on may have something to say to the convention, but acting as the temporary chairman it is my duty and my very great pleasure to introduce to you the representative of the Mayor of this wonderful city of Chicago, who will deliver an address of welcome.

I have the pleasure to introduce City Prosecutor Taylor, representative of the mayor of Chicago. Mr. Taylor, gentlemen of the convention.

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Mr. Taylor spoke as follows:

Mr. Chairman and Gentlemen: His Honor the Mayor did not mean anything sinister at all by sending the city prosecuting attorney here. We have not taken any special police precautions on account of your assembling in Chicago. In fact, I think perhaps the only possible official duty I may have in connection with your convention will be to prosecute, under a charge of disorderly conduct, the local telephone men who fail in any measure of hospitality due to the visiting delegates.

I am sure that Mayor Dunne would have been charmed to be present in person this morning and to meet this representative gathering, coming from so many different states and engaged in such a very important branch of industry. It is his misfortune that he cannot be here. Literally, he cannot. No ordinary circumstances would have deprived him of the pleasure of personally tendering the hospitalities of Chicago to this convention, but as you all know, and as the country knows, His Honor the Mayor had hardly alighted in the mayoral chair before the most serious industrial disturbance that Chicago has seen in many years broke out, and every day and every hour has made its fresh demands upon the Mayor's attention in order to care for the public peace and well-being. Yesterday evening he ascertained that at this hour he would be unable to be here, and he asked me, as his representative, to be present. He has to do the best he can, gentlemen. He reminds me of an incident that occurred in Chicago not long since. A man was taken sick, a poor workingman, inhabiting a tenement house in the southern part of the city, and he scrawled a note to his doctor, which read: "Please come down and see me. I have got the smallpox." The doctor looked at it, saw what it was, and said: "Thunder, I don't want to go down there! If that fellow has got the smallpox the health department is the fellow for him." He telephoned to the commissioner of health and the commissioner of health sent his disinfectors and physicians out there. When they got there and came to the bedside of the sick man, or, rather, to the room in which he was sitting, they discovered he had no sign of smallpox. He said to them. "No, I haven't got smallpox. It is rheumatism that ails me, but when I came to write that note I didn't know how to spell rheumatism, so I did the very best I could." And that is the situation of His Honor, the Mayor, this morning.

He charged me, however, to say to you gentlemen, as business men interested in the country and interested in this great central industrial and convention city, that peace and order will be preserved, and that the great industrial disturbance now prevailing, like some of its predecessors, will be settled and settled to the interests of the community at large. We trust it will be done somewhat in the spirit of compromise that one of our Chicago soldier boys manifested in the Cuban war. They were out occupying the intrenchments before Santiago and expecting the Spanish attack; the captain of a certain company went down the line, and, stooping down where the men were lying, he said, "Now, boys, be cool, be cool. Don't fire prematurely. Wait until they come up close to you, so close that you can see the whites of their eyes. Then—then is the time to fire." Presently he came down the line again admonishing them. Finally one perturbed fellow, getting a little nervous from the long suspense, said, "Cap, do you suppose the Spanish soldiers are looking for the whites of our eyes?" The captain said, "Yes, I suppose they are." "Well, Cap," said the man, "can you see any sort of misconduct in me picking out my particular Spaniard and going to one side and seeing if we can't compromise?" Now that was a good spirit, gentlemen—practical in every sense of the word—and we are in hopes that this industrial disturbance in Chicago will be settled in a spirit of compromise. In any event, it will be settled, and settled effectually and salutarily; and we want you gentlemen who do not reside here to go away from Chicago feeling that we are not wild and only moderately woolly.

This story has been told—with an answer—and if it is old I beg your pardon. My apology will be that its aptness suggests it. A little boy who had been piously reared in Boston was on the eve of moving to Chicago with his father's family. He had heard what a wild, reckless, dangerous, disorderly and irreligious community this was, so after saying his little prayer the night before starting, as an additional petition he said, "Now good-by, God; I am going to Chicago." A Chicago man heard of that and answered it. He said, "That is all right. The language was correctly reported, but there were some mistakes, nevertheless. The mistakes were in the punctuation and the inflection. Here is what the Boston boy really said: "Good! By God, I am going to Chicago!"

This great central city, gentlemen—at least among its more meditative and reflecting business men—I think fully appreciates your business. We know that it is one of the great industries of the twentieth century. We know that it is one of the great sciences and a coming science. We know that it is one of the prodigious energies of modern industry, and an indispensable one. We know that it is adding momentum to this rapid age of ours, an age in which we are already in a sharp canter, and merging rapidly into a wild gallop. We know that it is taking us somewhere and taking us rapidly. We know that it facilitates business—good and bad—marriages and funerals; that it is one of the accessories of both labor and pleasure. We know that here in Chicago, where the business citizen of the metrooplis is largely employed, while downtown, in dodging, or trying to dodge, automobiles and answering telephone messages. We know that it is encouraging one of our learned professions—the medical profession. We know also that it is encouraging many other businesses. I will not stop to schedule them. We know, in short, that the telephone business is a vast and important branch of modern civilization.

We fully appreciate the business in which you are engaged, and we are especially glad—perhaps I would better speak for myself and the Mayor, rather than for the city, for I am not a telepathist—that you are organized here in an Independent National-Interstate Association, looking at least casually and incidentally to the establishment in this line of work of that old, salutary and just principle of business upon which all of our national greatness in the past has been predicated—namely, honest competition. I say, gentlemen, the Mayor by me bids the visiting delegates a hearty welcome to Chicago. We speak forty-three different tongues and dialects in this great city, the city statistician tells me, and it probably may be my duty to deliver a welcome in each one of these tongues, but I think that I would embarrass you if I did; so I will put it in plain English. In behalf of His Honor, Mayor Dunne, and in behalf of the city of Chicago, Mr. President, I tender this association, upon the occasion of its annual meeting, a most hearty welcome, and a free and hospitable time of it.

Following Mr. Taylor's address, Chairman Powers said: "Gentlemen, we will now have the pleasure of listening to a response to the delightful words of welcome by the Mayor's representative, Mr. Taylor. One of the oldest, as well as one of the strongest and best Independent telephone men in the United States, will respond to the address of welcome. I have the honor to introduce to you S. P. Sheerin of Indianapolis.

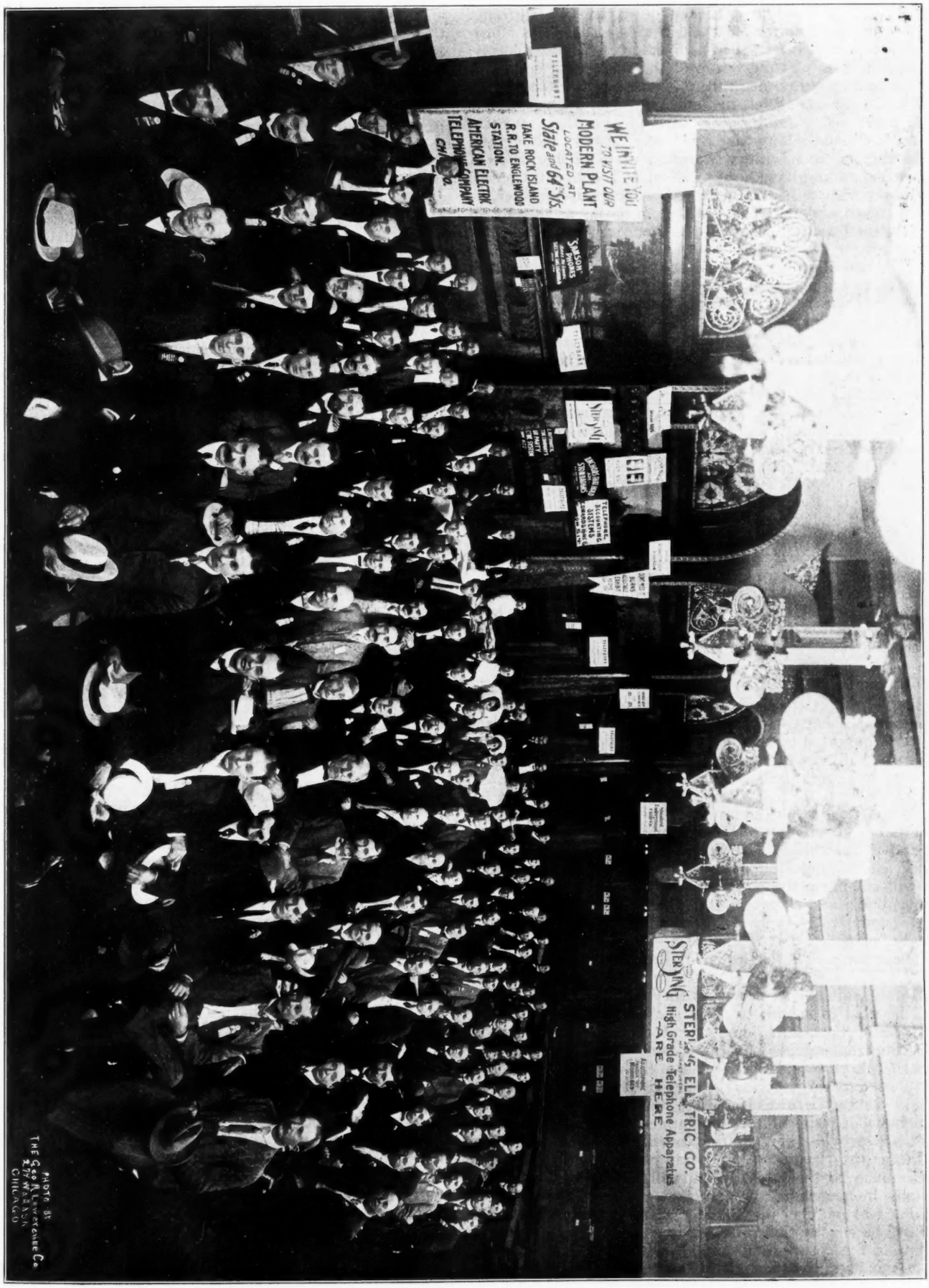
Mr. Sheerin took his position beside the chairman and said: "Mr. Taylor, I am a little bit embarrassed. I had my paper prepared for the Mayor, and for a while, when you first began, I hardly knew how I was going to fix the thing up; but it came to me very easily after a while—I think very naturally. It came to my mind that I might address a future Mayor of Chicago, which I trust I am doing. On behalf of the delegates present and the 2,500,000 telephone users in the United States whom we have the opportunity to represent, I thank you most sincerely for this hearty welcome. Although the greater number of us only came in on this trip last night, we are by no means strangers in your beautiful city. Chicago has had most intimate relations with the Independent telephone movement since its very inception. Of the $250,000,000 invested in the business at least $75,000,000 has been spent for switchboards, telephones and other equipment, and I am quite sure that it is entirely safe to say that eighty per cent of this latter sum has been paid to Chicago manufacturers."

At this point Mr. Sheerin was seen to turn pale and to experience difficulty in speaking. He turned to Chairman Powers and said: "Colonel, I feel one of my attacks. I will have to stop." The words were scarcely out of his mouth before he fell to the floor senseless, expiring almost instantly, the cause of his sudden death being heart disease. The delegates were too deeply shocked by the tragic occurrence to proceed with the programme, and an adjournment was taken until 3 o'clock in the afternoon.

AFTERNOON SESSION.

The convention met pursuant to adjournment, at 3 o'clock, with Colonel Powers in the chair, who said in opening the session: "The secretary and assistant secretaries were not announced this morning. Mr. Tetu of Tennessee has been selected as temporary secretary, and Mr. Wells of Kansas and Mr. Bradley of Pennsylvania as assistant secretaries. I shall be glad to have the secretaries come and take their positions." The chairman then proceeded:

"Gentlemen of the Convention: It is needless for me to say that which you all feel. A most distressing and sad event has transpired in the body of this convention. Death is sad and dreadful in its consequences when and where



ASSEMBLED DELEGATES IN CONVENTION HALL, AUDITORIUM HOTEL, CHICAGO, JUNE 20-22, 1905, NATIONAL-INTERSTATE TELEPHONE ASSOCIATION.

it will, but indescribably sad is it when in the full flow of spirit and health we are stricken down without warning. Such is the sad condition that we witnessed here this morning. My part in it was such as to impress me most deeply, because he who was the victim of the stroke that ended his life had expressed to me in the lobby below how thoroughly well and vigorous he felt this morning, with a good night's rest, and was commiserating with me on the statement that I had made to him that I felt very unwell myself; and in so short a time, without warning, when in the midst of that which would have been to all of us a delightful recital of his experiences in the interest that brings us together, he was stricken and fell before you, and, so far as this world is concerned, is as much removed from it as if he had died years ago.

"This condition brings us to the point and makes it due from us to his memory that suitable action on the part of this convention be taken to commemorate his memory; to remember, as far forth as the records may preserve it of this convention, the life, the virtues, the usefulness, the benefit of such a man in such a cause as he had espoused and as a citizen of the country; and therefore we have come together this afternoon in a short session chiefly for the purpose of paying tribute to the memory of S. P. Sheerin of Indianapolis. I will now entertain a motion with reference to a committee for the purpose indicated in what I have said."

James B. Hoge (Ohio): In order to carry out the suggestion made, I move that the chair appoint a committee of ten, of which he shall be one, to draft suitable resolutions, and for any other action necessary in view of the said experience we have had this morning, and to report to this convention when it convenes to-morrow morning.

Mr. Placer (Iowa): I second the motion.

The Chair: Gentlemen of the convention, you have heard the motion as made and seconded. Those in favor of the motion signify it by saying aye. I need not ask for the contrary vote.

The motion was carried unanimously.

The Chair: Gentlemen, in anticipation of your action in this matter, I have selected the following committee for the purpose indicated by the motion: Jesse W. Weik, Indiana, chairman; J. G. Splane, Penna.; J. B. Ware, Michigan; George W. Beers, Indiana; E. B. Fisher, Michigan; E. L. Barber, Ohio; E. E. Clement, Washington, D. C.; James B. Hoge, Ohio; Theodore Gary, Missouri; J. D. Powers, Kentucky. I will say to the committee that in advance of what has been done, I have requested, in appointing Mr. Wick as chairman, that he shall prepare resolutions, which he will submit to the committee in the morning before the convention; and therefore the other members of the committee may only tentatively make such memoranda as they choose, or none at all if they please.

The Chair: The chairman of the committee on resolutions requests that the committee meet him in this hall at half-past eight, or as nearly as they can thereafter, and he will be glad to submit to them such resolutions as he has prepared. Gentlemen, knowing the sturdy character of Mr. Sheerin and his business qualifications, and knowing what I believe would be his wish in the matter, we will perform some other necessary duties, or take some other necessary action here to facilitate the meeting to-morrow, which will consist of the appointment of some committees that are provided for in the constitution and such other duties as may be raised by motion; and that is to be done preliminary to the work, which will be abridged very materially by reason of the fact that we shall practically be confined to one day instead of two, as contemplated in the call. The constitution provides for a committee on amendments to the constitution, and therefore in the consultation with the executive committee, and without attempting to assume the responsibilities and duties of your permanent officers, it has been suggested that this committee should be appointed by your temporary chairman. I will appoint on that committee: Theodore Thorward, Indiana; H. A. Price, Michigan; E. W. Dunaway, Texas; W. G. Thompson, Ohio; P. T. Spencer, California.

There is another committee which is provided for by the constitution, and a very important committee to this and all like bodies, and that is the committee on credentials. As they should report in the morning, I will proceed now to appoint them. Of course, you gentlemen will understand that I am doing this subject to objection. If there is any objection raised to any of these points it will not be done; but I am assuming that you gentlemen are agreeing to the act of the executive committee, and therefore if there is no objection I will now appoint the committee on credentials, as follows: J. G. Splane, Pennsylvania; Richard Valentine, Wisconsin; J. S. Bellamy, Iowa; G. M. Saltzscaber, Ohio.

It was provided that we should have a committee on nomination and the announcement was made by me this morning at the opening of the convention that if the states each would send the name of one of their delegates to act on the committee on nominations, I should be very glad to have that done at once. I believe we have a list of the states represented here—some twenty-four or twenty-five—but if you gentlemen will simply call your states and send up the name, then we will make up the committee so that the members may be notified at once and take such action as will enable them to make a report on nominations in the morning, so that your convention shall be taken charge of as quickly as may be by your officers, elected by you in the usual way. Now, gentlemen, if you will, without any reservation, present the names of the committeemen from the various states, we shall be very glad.

The following gentlemen were then nominated by the various states to serve on this committee: Stanley S. Lichty, Iowa; W. Roy McCanne, Missouri; W. Gilbert Thompson, Ohio; E. B. Fisher, Michigan; J. C. Harper, Wisconsin; Charles E. Wells, Kansas; P. Kerr Higgins, California; A. C. Davis, West Virginia; H. K. Cole, Kentucky; S. B. Rawson, New York; W. L. Moellering, Indiana; E. W. Dunaway, Texas; E. R. Conklin, Illinois; W. H. Bryant, Alabama.

E. B. Fisher (Michigan): The city of Washington is represented by one gentleman, who would hardly like to present his own name. As one of the older members of the body, I would like to present the name of E. E. Clement as a member of the committee on nominations.

The Chair: The District of Columbia presents the name of Mr. Clement. If there is no objection to the District being a state, and hearing no objection, Mr. Clement will serve. Of course, we want, so far as we can, to have all the states represented, and therefore if there are other states that are here and have not been represented by announcement of the name, and that name shall be presented to the executive committee—that is, the gentlemen who have had charge of this matter, either Mr. Gary or Mr. Hoge, or to the temporary chairman of this convention—we will be glad to receive it, and either of these gentlemen or myself will certify to the credentials and put the name on the committee. I name these two gentlemen because they have had charge of the matter conjointly since the formation of the association, and I name myself by reason of the position in which I have been placed by the executive committee.

Now, gentlemen, there is another committee that has been provided for by motion which was made in one of the large committees, or joint committee, last night—a committee to confer with the manufacturers' committee, each being a committee of five, one from the manufacturers and one from the association. If there is a resolution or a motion on that subject I shall be very glad to take the

matter up and dispose of it, which will probably conclude what we have to do this afternoon.

E. L. Barber (Ohio): Mr. Chairman, I move you that a committee of five be appointed to meet a like committee of the manufacturers' association for the good of the combined order.

The Chair: Such a committee has already been appointed by the manufacturers to meet with a committee to be appointed from this body. Is the motion seconded?

E. E. Clement (Washington, D. C.): I second the motion.

The motion was put and carried.

The Chair: I will appoint on that committee: E. L. Barber, Ohio; J. G. Splane, Pennsylvania; Richard Valentine, Wisconsin; C. Y. McVey, Ohio; O. N. Snider, Ohio. This makes five, and there is to be a joint committee of ten. Gentlemen, what is the further pleasure of the convention at this time?

Theodore Gary (Missouri): Mr. Chairman, I think it would be well to have it understood that the business part of the programme of the convention is to be carried out. A good many inquiries have been made by delegates and by the manufacturers and others as to how much of the programme would be changed, and so on. I think it would be well to state now just what may be expected, how much of it we will cut out and how much we will carry out.

The Chair: Will you make a suggestion on that subject?

Mr. Gary: Yes, sir. I am in favor of carrying out all of the business that is outlined on the programme, and simply drop the banquet and any other entertainment feature that might have been contemplated.

The Chair: Is there a second to the motion.

Richard Valentine (Wisconsin): I second the motion.

The Chair: It is moved and seconded that to-morrow we take up the regular order of business, and if it shall be determined after consuming that much time upon the reading of the papers, etc., that the gentlemen themselves prefer to have the papers sent in and printed in the proceedings so as to give more time for deliberation of such important business questions as come before the convention, I suppose it would be entirely agreeable?

Mr. Gary: Yes, sir.

The motion was put and carried unanimously.

The Chair: I suggest, gentlemen, that as a great many of the members of the association and the convention are not present this afternoon, each of you regard yourself as authorized to make statements to members below who are not here so that they will govern themselves accordingly, and the manufacturers will take notice, I presume. They have representatives here. Now, gentlemen, is there anything further to come before this meeting?

Mr. Hoge: Mr. Chairman, I move that the matter of arranging for flowers for Mr. Sheerin's funeral, and matters of that character be left to the committee on resolutions.

The Chair: Gentlemen, if there is no question, that will be the order. It is unnecessary, I think, to make a motion on that subject, it being known that that is the order and there being no objection. Gentlemen, what is the further pleasure of the convention?

W. G. Thompson (Ohio): Mr. Chairman, I would suggest that the place and time should be fixed now for the meeting of the various committees, so that we may be able to get together. The committee on resolutions no doubt know where they will meet, and you have arranged for that. The committee on nominations and the committee appointed by the chair on amendments to the constitution have no designated place or time where or when they will meet. I shall be pleased to meet all members of both of these committees at my room whatever time may be designated.

The Chair: I would suggest to you that the committee on amendments have no occasion to meet, so far as I know, without there is some amendment offered to the constitution.

Mr. Thompson: I was going to say that that might be the case.

The Chair: I think that might be left over, but the other is certainly a very important matter. Will you suggest an hour?

Mr. Thompson: I would suggest immediately after adjournment this afternoon. If that committee will meet with me in my room the probability is that we can take the matter up and discuss it, at least; and then if we need an adjourned meeting it can be held.

The Chair: Gentlemen of the committee, is there any objection to the suggestion made? If not, I make the announcement that the committee on nominations, immediately after the adjournment here, will meet at Room 508, for the purpose of organizing and taking up such other business as they may be able to carry out.

Mr. Hoge: I would suggest that the committee on credentials meet at Room 230, where the credentials are on file. I know there are a good many here that wish to be represented and some that can only be represented in districts until their states can organize. It seems to me it will be perfectly proper for them to come before the committee this afternoon to Room 230. I also wish to call attention to the importance of getting a complete register of all delegates and visitors in attendance. We had 230 the last time I was in the registration room and twenty-three states represented. I have no doubt that there are between 300 and 400 delegates and visitors in attendance, and I think we should get a registration from every one of them, in Room 232.

The Chair: Gentlemen, I have not attempted in making these committees to appoint chairmen of the committees, except in the case of the resolution committee, and therefore you gentlemen, when you meet, will make your own organization, appoint your own chairmen and have absolute control and charge of the matter as far as that is concerned, so that the committee on credentials are asked to meet at Room 230. At what time? Will you indicate?

Mr. Hoge: I think they should meet right away. There is a lot of work to take up. Gentlemen, suppose, as preliminary to that work, you meet at Room 230, if you will.

A Member: As to the committee appointed to meet with the manufacturers, I would suggest that we meet at 5:30 at Room 230. We are not prepared to state just when the committee of the manufacturers can meet us, but if we get together at that time then we can state the hour.

The Chair: The committee to meet the committee of manufacturers will meet then at Room 230 at 5:30 o'clock this evening. Are there any further suggestions or motions?

J. A. Hudson (Missouri): If there is no objection, I move that out of respect to the memory of the late Mr. Sheerin, the convention do now formally adjourn until nine o'clock to-morrow morning.

Mr. Gary: Mr. Chairman, I second the motion.

The Chair: Gentlemen, you have heard the motion made, and, under the circumstances, if you will permit me—it would not be customary in a matter of this kind, but since the name appears in connection with our adjournment, and since it is in respect to his memory that we adjourn—I ask that the convention vote by a rising vote. All in favor will signify by rising to their feet. The convention stands adjourned to nine o'clock to-morrow morning, and I hope that all of you gentlemen will try to be here as nearly as possible at nine o'clock.

WEDNESDAY MORNING SESSION.

The convention met pursuit to adjournment, at 9 o'clock, with Colonel Powers in the chair.

The Chair: Gentlemen, without objection, we will omit the reading of the record made yesterday, as it was very brief before the adjournment, and we will proceed to business. On yesterday, as you gentlemen who were here are aware, and as all the convention has been notified, a committee was appointed with a view to giving expression to the feelings of the convention with reference to the tragedy that occurred before you all yesterday. Is that committee ready to report?

Jesse W. Weik (Indiana): Yes, sir.

The Chair: Mr. Weik, the chairman of the committee, I will ask to read the resolutions and such report as he has to make.

Mr. Weik then read the following:

The sad and untimely death in this hall yesterday of the Hon. Simon P. Sheerin, president of the New Long-Distance Telephone Company of Indianapolis, has cast a deep and melancholy shadow over the otherwise auspicious proceedings of this, the ninth annual convention of the Independent telephone interests and the first meeting of the National-Interstate Telephone Association of the United States.

The sudden and tragic taking off of our brother only serves to emphasize the truth of the adage that "death loves a shining mark." In the entire field of telephony a more conspicuous champion of the Independent movement, a more zealous laborer for our common cause and mutual good could not have been found. He knew no season. At all times and in all places he proved his devotion to our dearest and best interests; and so faithful and unremitting were his efforts that it may truthfully be said that he died in the harness—in the very act of appealing to the greatest constituency on earth, the American people, for our just rights and a square deal.

He was a man of fertile resources and deep usefulness. The son of a mechanic and himself a laborer over the anvil, in his father's shop he early demonstrated his skill and ability. His associates and neighbors, impressed by his faithfulness and worth, chose him to fill one of the important offices, that of Recorder in Cass county Indiana. From that he was promoted to the more noteworthy position of Clerk of the Supreme court. But meanwhile his reputation had grown beyond the confines of his state, and in 1888 he was selected and served until 1896 as the secretary of the Democratic National Committee. In whatever station he occupied, to whatever post he was chosen, he demonstrated that he was in every case equal to the demand. His rise in life and his successful civic career are admirable illustrations of the great possibilities that lie within reach of the American youth endowed with a clear head, a brave heart and a strong right arm.

His private life was clean. His habits were above reproach. Always genial and affable, he was none the less, when occasion demanded it, brave, assertive and tenacious. He was generous and forbearing and his heart overflowed with sympathy for others whom sorrow or misfortune had overtaken. But above all things, he was loyal and true. Once admitted to his friendship, he bound you with hoops of steel. Nothing could make him do a dishonest act or join with others in a questionable transaction. He held that the faith and trust of his friends was dearer to him than money or any kind of preferment.

In his death Independent Telephony has suffered an overwhelming and incalculable loss. Were he living he would still be with us shoulder to shoulder in the great struggle for fair competition and clean, wholesome business methods.

The convention having been adjourned over yesterday out of respect for the memory of the deceased, therefore be it

Resolved, that copies of this memorial be entered on the records of the Association and furnished to the sorrowing and bereaved family.

Jesse W. Weik,	E. L. Barber,
J. G. Splane,	E. E. Clement,
J. B. Ware,	J. B. Hoge,
G. W. Beers,	Theodore Gary,
E. B. Fisher,	J. D. Powers.

Mr. Weik: Mr. Chairman, I move the adoption of the resolution as read.

The motion was seconded by Mr. Clement and carried unanimously.

The Chair: Gentlemen of the convention, we have disposed of a sad duty. We have paid respect to the memory of one of our members whose ability we all recognized, whose integrity we all believed in, whose far-sightedness we have witnessed. We are now brought, after having discharged our duty in this respect, to the question of the business interests, of the live issues that present themselves to this convention and for which primarily we were assembled. It is the purpose of those of us who came here to discharge the earnest duties that devolve upon us as representative men of our particular localities and of an especial interest that is fast growing throughout the United States and which we have done much to foster. In regard to that which is to be done, we must now crowd into this one day that which was intended for two full days' hard labor. Therefore, it would be in the interest, possibly, of the effort that we are to put forth, the mark that we are to make in this convention, that there be much abridgement of what was the purpose in the way of argument and papers to be read and discussed, and therefore it will be in the hands of this convention to control that matter in a large degree, though I apprehend that the gentlemen whose papers are presented or will be presented here will have a keen appreciation of the necessity for hastening the work of this convention and getting down to those matters that we must take in hand and dispose of on the floor of this convention. In order to do that they sacrifice nothing if they shall be kind enough in this convention at this time to say, "Having prepared a paper, in view of the misfortune that has overtaken us and the shortness of the time, I ask the consent of the convention that it be printed in the proceedings and be as if read." Therefore, I think there will be no need for the papers to be read, unless there is some very special reason therefor.

Gentlemen, in this Independent telephone work you have been confronted by not necessarily an enemy, but by an interest that was exceedingly selfish, and so selfish that it produced upon the general public the idea of special enmity to any progress in this most progressive thing of the age; and therefore, if you will stop and think for a moment—and I beg your pardon, I am not going to take advantage of my position to make a speech here at all, but if you will stop a moment and consider what is necessary in order to combat the opposition to your movement and your effort, if you will stop and consider in this convention what it is that is necessary in order to combat the movement that is to stop, to stay, to stifle, if you please, the advancement in the interests of telephony in the United States, without reference to companies, you will see that it is absolutely necessary to do what the gentlemen who controlled the two companies that were amalgamated, the National and the Interstate, have thus far accomplished. Now what you want to do is to get shoulder to shoulder, elbow to elbow, and stand firm as a stone wall against the opposition, and say that this movement shall go forward and shall be resistless; that you will not undertake to put yourselves in the attitude of a man who is in a position to be overcome or shall be overcome without a fight with the whole of Independent telephony. You must get yourselves in the attitude, in the place where we, as Independent people, represent what the companies on the other side represent. The moment you say telephone, where the Bell telephone is used, it is the great Bell telephone that is meant. Let it be the great Independent movement of the people and of the interests of Independent telephony that says this and not an individual company that may be segregated somewhere in some state or some district. Let us stand, and let us stand firmly and steadfastly together, effecting a perfect union as far as strength is concerned.

Some of you may remember to have heard of the difficulties that we had over patents that had been issued a little more than a hundred years ago. People held this country by patent. Everything belonged to the crown. What would have become of those who, actuated by patriotic desire, by love of country, by freedom—what would have become of any one or any part of the states when there were thirteen, except as they stood shoulder to shoulder against the com-

mon enemy? What chance would there have been if they had been divided in council? But to form a more perfect union after the bill of rights had been adopted they formed the constitution, and when they came up it was in solid phalanx. No stragglers! It is true that now and then there was a Tory. It is also true that in this latter day when we need union and when we need to stand shoulder to shoulder, we occasionally find a Tory. But that does not effect the case. We know of twelve men who were associated together and had a leader, and absolutely one of the twelve was found that could not resist the temptation of even "thirty pieces of silver"; and there are Judases today in our camp at times, but, thank goodness, they are rarer than one in twelve. When you find him, let him be marked. When you find him, let him go and let his name be anathema maranatha forever, and let him take his thirty pieces of silver, buy him a piece of ground and hang himself as he should, in disgrace!

Gentlemen, the only thing that I desired to say, and I have gone just a little beyond that, is that we want to have faith in each other. We want to believe in each other. An association of gentlemen for business purposes that are suspicious of each other, that have no faith in each other, ought to separate at once, because they never can do any good. Have faith in me. I have faith in you. Faith begets faith. We are a progressive people. We have started out here to do that which is in the interests of the people of this country, as well as of our individual interests. We can best subserve the interests of the people by subserving our own interests. Not in a selfish purpose only, but we should all make money out of what we are doing; we should all make character out of what we are doing, and at the same time give the people what they are entitled to—the best service possible, the longest distance and the quickest service that can be given.

Let us stand shoulder to shoulder in this movement. Let us work, now we have things harmonious and have but one head, let us work for the interests of this movement and its results will come back to us like the bread that was cast upon the waters, and we will be the beneficiaries, the country will be the beneficiaries—the people. Notwithstanding we have been set aside, laughed at and scorned from the beginning, that great arch-enemy of progress—I say that advisedly—the Bell Telephone Company, is beginning to recognize that there is an Independent movement in the United States. It took two millions and more of telephones to be rung before they could hear and catch the noise that was in the air, "Hello! Hello!" Somebody else says "Hello" besides you, and it is not a mere echo. Now, gentlemen, when we see that these men begin to find out that we are in existence, then we may hope to educate the balance of the world to a knowledge of the fact. They are ready now to do what? Give you connection with their long-distance telephones, licenses, system, other devices, other schemes. The cruel effort to break down with money and not with principles the advancing column of civilization in this great work has failed. Now other things must be taken up.

Gentlemen, this work is in your hands, and that which you do here to-day will go far toward sustaining you in the right, go far toward pushing you forward in the right line of progress and success, and I hope that the incoming officers who will soon preside here will be sustained throughout the year, that the movement will be sustained, the effort will be sustained, and with such officers as you will select I feel perfectly sure of the success, and wonderful success, of this National-Interstate association of telephone men of America. I thank you, gentlemen.

The Chair: Now, gentlemen, in order that you may have the opportunity to take charge of your own matters and not be in the position of being presided over by a mere temporary chairman, I desire to ask if the committee on nominations is ready to report.

E. B. Fisher (Michigan): It is, Mr. Chairman.

The Chair: Gentlemen of the convention, are you ready to hear the report of the nominating committee? I will suggest this in advance—if you pardon me. Sometimes we get a little bit too rapid. Mr. Hoge, the committee on credentials has not made a formal report, but I understand has made such a report that those who are registered are members of this association?

James B. Hoge (Ohio): So I understand; yes, sir.

The Chair: So I say, gentlemen, without waiting for a formal report from this committee, I will now hear the report of the committee on nominations.

Mr. Fisher: Mr. Chairman and members of the first annual convention of the National-Interstate Telephone Association, the committee on nominations to which was entrusted the pleasing duty of selecting for your consideration suitable persons for election to the first elective offices of this truly national body, have the honor to present this ticket, with the earnest hope that it meet your formal approval: President, James B. Hoge of Ohio; first vice-president, Theodore Gary of Missouri; second vice-president, John Van Liew of California; secretary, A. L. Tetu of Tennessee; treasurer, J. G. Splane of Pennsylvania.

Mr. Chairman, in view of the response which the reading of these names has elicited, and because the action of your committee on nominations was absolutely unanimous, not wishing to arrogate any of the privileges or duties of this body, I have the honor—and I hope I will be unanimously supported by this convention—in offering the motion that the ticket you have heard be unanimously elected by a rising vote.

The Chair: I beg your pardon. The constitution provides a ballot.

Mr. Fisher: Then I move in place of that that by a rising vote of this convention we instruct the chairman to ballot for the ticket you have heard, so that the action may be in accordance with the constitution. I should have remembered that, as I helped to make the constitution.

The motion was seconded by Edward Bellamy of Iowa.

Mr. Fisher: The motion having been made and seconded, and it being an instruction to the chairman to perform a duty, gentlemen, will you rise and so instruct your chairman? I think you may safely assume, Mr. Chairman, that with the exception of the nominee the ballot is absolutely unanimous.

The Chair: Gentlemen of the convention, if there is no objection, one ballot will be cast for the names suggested by the nominating committee for the offices thereto attached. I hear no objection. The secretary will record:

For president, James B. Hoge of Ohio, one ballot.

First vice-president, Theodore Gary of Missouri, one ballot.

Second vice-president, John Van Liew of California, one ballot.

Secretary, A. L. Tetu of Tennessee, one ballot.

Treasurer, J. G. Splane of Pennsylvania, one ballot.

Gentlemen, I have the pleasure to announce that these gentlemen whose names I have just read and for the offices for which they have been nominated and elected, are duly elected to preside over and take care of, as president, vice-presidents, secretary and treasurer, the destinies of this association for the ensuing twelve months, or until their successors are elected and installed. Now, gentlemen, of the convention, it affords me very great pleasure to introduce to you your new president, James B. Hoge of Ohio, who will take charge of the meeting.

Mr. Hoge then took the chair.

President Hoge: Gentlemen, that is a pretty narrow margin to be elected on, one vote. I wish to thank you one and all for the very high tribute you have paid not only to myself, but to all my colleagues in this matter this morning. We certainly cannot help but feel that your appreciate the

plan that we are working under. I do not think the officers are as much responsible for the harmony and the excellent results that we have obtained during the past year as each individual officer of the state associations has been. I find excellent co-operation all along the line, and if we have the same co-operation this year, with the harmony we have to start out with, and with the united action, not only of all the officers, but also of the members, not only in the states, but also in the district organizations, I am satisfied that the next convention we shall have will be a record breaker.

I will take but a few moments of your time this morning. I have prepared a paper to be read, upon "The National-Interstate Telephone Association." All the ideas that I had to impart are in that article, and while it may not be read this morning, it will be printed, so that you will all have a chance to see my views, and I therefore think we had better get to business as early as possible, because we have a large amount of very important work to take up to-day. I wish again to thank you for the very high tribute you have paid myself and my associates.

Mr. Fisher: Mr. President, may I trespass upon the time of the convention and yourself just a moment? Some of you, all of you who were at St. Louis last year, will remember that the duty devolved upon some of us to notify our colleagues in that convention that the first president of the National association, the Hon. James M. Thomas of Ohio, was at that time stricken with a fatal illness. You remember but a few weeks, two or three, after we separated he joined the majority and was called ahead of us. He was the first president of the National Association, of which we are now a lineal successor, and one of the most admirable, one of the most indefatigable laborers in our cause that we had in the whole United States. Some of us who were associated in that earlier movement, who were on the advisory board and patent committee in those days, sometimes in our privacy—Mr. President, you will remember that you were a part of it—called ourselves the Old Guard.

Two of the Old Guard—one of them yesterday—are gone. One of them is stricken with serious illness, and another was referred to among others, perhaps the chief offender, by our chairman this morning—worse than dead. The earlier workers are passing away. The younger men, the hopeful men, the strong men, are coming in. We are willing to retire, but some of us who are older do hope that when we are gone some little consideration for our services will be manifested. Tribute was paid to the Hon. Simon P. Sheerin this morning. We knew, as his Christian name indicated, that he was a rock we could stand by; there was no falseness there. James M. Thomas was such another. I do hope, Mr. Chairman, that the first president of the National Association—and I had almost said the only president up to the present time—sometimes we blot out names—ought to receive some tribute, some formal recognition, from this body. Having served on the memorial committee appointed yesterday, I offer this motion, begging the chair to appoint a suitable committee, with somebody else at least as chairman, to draft a suitable memorial before we separate, upon the Hon. James M. Thomas. I offer that motion.

The motion was seconded by W. G. Thompson of Ohio.

The Chair: You have heard the motion, gentlemen. Are there any remarks? How many will you have on the committee?

Mr. Fisher: I think perhaps the chair's judgment would be better. There are men who would consider it an honor to be on that committee, so I did not limit it.

The motion was put and carried unanimously.

The Chair: I will appoint the committee and announce it a little later in the day. The question came up yesterday afternoon with reference to flowers for Mr. Sheerin's funeral, and that matter was left to the committee having charge of the resolutions this morning, but was omitted in making the report. There being no objections, I will instruct the two members from Indiana on that committee to arrange suitable flowers for the funeral and send the association a bill for same. Unless I hear an objection that will be their instructions.

We will take up the order of business now where we left off yesterday. The first paper is "The National-Interstate Telephone Association," by myself. I have the paper here, and it is a question now whether we want to read these papers or simply accept them and have them printed. I would like to have some action on this subject, and we will call the papers if you do not have them read and then act on each one. The first paper is the paper by myself. What action, gentlemen do you wish to take on this subject?

H. K. Cole (Kentucky): Mr. President, I presume arrangements have been made with the telephone magazines and papers for publication of these papers that are presented to the association if they are not read here.

The Chair: Copies have been made of all of them, I think, and furnished to the eight technical journals and also to the Associated Press and some of the other journals.

Mr. Cole: In view of that fact, I move, then, that the paper which was to have been read by the president be received by the association and incorporated in the records of the convention.

E. E. Clement (Washington, D. C.): Mr. President, may I speak with regard to this particular motion and move to amend it? Would it not be shorter, since we have some important things to discuss, to make a blanket resolution to the effect that those papers which do not call for discussion now shall be printed and those which do call for discussion shall be read and discussed, and then have the names of the papers read and those selected, such, for instance, as the question of toll lines, which is extremely important? Let the convention decide as to the broad question. In order to bring that before the house, I will move to amend the motion of the gentleman from Kentucky to that effect that those papers which require discussion shall be read and those which do not require discussion shall be referred to the committee and printed.

Mr. Cole: I accept the amendment.

The Chair: We will make that a new motion. Is there any objection?

The motion was seconded and carried.

The Chair: I will ask the secretary, then, to read the titles of the papers on the programme, and we will decide as we go along which ones shall be accepted and filed and which ones shall be read for discussion.

Mr. Thompson: Mr. President, is it the intention to have an official compilation of all the papers here also printed for the benefit of the association?

The Chair: No, that has not been arranged. It was taken up and discussed, and we found that practically all of the journals were going to publish full proceedings; they are being furnished with copy of the secretary's report, and we thought we would do away with the expense. It seemed needless expense.

Mr. Thompson: We can get them, then, in the technical journals?

The Chair: Yes, sir; in the principal ones at least. I think all of them are arranging for the full report.

Secretary Tetu: The first paper, Mr. Chairman and gentlemen of the convention, on which we take action, is that of James B. Hoge, "The National-Interstate Telephone Association"; the second one is "Ways and Means to Make Our Association a Success," by Theodore Gary of Macon, Missouri; third, "Shall the Independent Companies Have an Insurance Company of their Own?" by James S. Brailey, Jr., of Toledo, Ohio.

The Chair: Just allow me to suggest here, gentlemen, if any member wishes to have any paper read and discussed as we go along, we can take action on it.

Mr. Clement: Would it not be well for the author of each paper to indicate whether there would be matter that would call for discussion that it would be advantageous to read, because we do not know the contents of all the papers?

The Chair: That question being raised, I will ask Mr. Gary.

Mr. Gary: There is nothing in my remarks that will require discussion.

The Chair: Is Mr. Brailey here? Mr. Brailey does not seem to be here. We will pass that.

Secretary Tetu: The next paper is "Combined Telephony and Telegraphy," by Samuel G. McMeen of Chicago.

Mr. McMeen: As the subject indicates, there is nothing there for general discussion. If there are any questions which might be brought out I shall be glad to answer them in full, from any members.

Secretary Tetu: "Standard Toll Signs," by W. F. Laubach, Akron, Ohio.

The Chair: He is not here, but his paper is here.

P. K. Higgins (California): I move you that that paper be read.

C. E. Tarte (Michigan): I will support that motion.

The motion was put and carried.

The Chair: We will pass that and have it read a little later.

Secretary Tetu: "Value of Telephone Securities," by A. B. Greenshields of Philadelphia, Pennsylvania.

Mr. Holdoegel (Iowa): I move that that paper be read.

The motion was seconded by Mr. Clement and carried.

Secretary Tetu: Those are all the papers, Mr. Chairman.

We are in receipt of a telegram, gentlemen of the convention, from Kempster B. Miller, from New York:

"James B. Hoge, Auditorium Hotel, Chicago.—Best wishes for the convention. Sorry I cannot be present.

"KEMPSTER B. MILLER."

The Chair: I wish to state, gentlemen, that there is one paper that was left off the programme through a misunderstanding between Mr. Clement of Washington. and myself. I first asked him to prepare a paper and then afterward I put him on a committee to do some work and intended to cancel the paper, not wishing to burden him too much, but I found he had prepared the paper. He said I did not cancel it and the paper is here. It is on the subject of "The Development and Future Tendencies of the Telephone Art."

Mr. Clement: I move that that be referred to the printing committee also.

The motion was seconded and carried.

A recess of three minutes was then taken to enable a photographer to take a photograph of the convention.

The Chair: It has been suggested that some time be arranged for the report of committees. I think probably the best thing to do will be to get through with the papers this morning, and the association take up one committee report this afternoon and then get to the other committee reports right after lunch. Is any one of the committees ready to report when called on this morning?

H. E. Bradley (Pennsylvania): The committee on accounting forms is.

Mr. Clement: The committee on standardization of equipment is.

J. A. Hudson (Missouri): The committee on best methods of advertising is.

The Chair: I will call for the committee on standard forms of accounting, while we are waiting for the papers to be brought in.

The report was read by H. E. Bradley of Philadelphia.

Mr. Bradley: Shall I read the subdivisions?

The Chair: If there is no objection, we will pass those. You have heard the reading of the report, gentlemen, what will you do with it?

Mr. Young (Ohio): It seems to me that by this method of granting leave to print we are not going to accomplish what we are here for. It is only going to take us a moment for these papers and recommendations to have the salient points of the papers outlined to us and their recommendations stated to us briefly and concisely. Take this paper that we have just had presented here; I think that it would be eminently proper to have this committee report what their subdivisions are with this method of accounting, and before offering a motion to adopt the committee's report I would suggest that we call on the committee for that subdivision. We are here to get ideas, and it seems to me that one vital point in telephone statistics is our method of accounting.

The Chair: You have heard the suggestion, gentlemen. If that is the pleasure of the convention we will ask Mr. Bradley to read the subdivisions, so that they can be taken up and discussed.

Mr. Cole: Mr. Chairman, I suggest that the subdivisions be read. I confess myself that the report conveyed very few new ideas to me, and the subdivisions are a part of the explanation of the main divisions of that subject.

Mr. Clement: I agree with that, Mr. Chairman. I think that the very purpose of reading this paper would be defeated if we do not get the recommendations, but the paper was briefer than we thought they were going to be.

Mr. Bradley then read the remainder of the paper.

The Chair: You have heard the reading of the report in detail, gentlemen. What is your pleasure?

Mr. Young: I move its adoption.

The motion was seconded by Mr. Higgins.

Mr. Clement: Was there a recommendation in that report?

Mr. Bradley: There was a recommendation that a committee of three or five be appointed to consider changes at any time—a permanent committee.

The Chair: You have heard the report, gentlemen. Are there any further remarks or questions?

Mr. Young: Would it not be well to have an expression as to whether it is the desire of this convention that the committee publish blank books that can be obtained by the local exchanges? That would be a good suggestion.

The Chair: That might be a good suggestion to work on.

Mr. Young: We can call for remarks on the suggestion after the adoption of the committee's report.

The motion for adoption was put and carried.

The Chair: Do you wish to make a motion on that?

Mr. Young: I offer a motion on that, Mr. President, that this committee be empowered to take up the matter of printing forms for accounting.

Mr. Bradley: Does that mean the committee as it now stands, or the permanent committee to be appointed?

Mr. Young: The committee to be appointed; it might be left to their discretion, however.

The Chair: Would you arrange with a publishing house or have the association sell them?

Mr. Young: It might be a matter of small revenue.

The motion was seconded by E. W. Dunaway of Texas.

Mr. Gary: I do not think we ought to go into adopting a plan. That would be adopting a plan. I think we should receive this report and report it to a committee; that is possibly all right, but to adopt any system of bookkeeping at this time would probably be acting beyond the intention of this organization.

The Chair: Your motion is simply to recommend a plan, Mr. Gary?

Mr. Gary: I think that is just as far as we ought to go. I don't think we ought really to recommend it. The state organizations ought really to take that up. It is a question whether we ought to go into that. Ought we to bring that up to the state or ought it to come from the state down, in the first place? I do not think we ought to adopt a form of bookkeeping at this time or a system of accounts, and if we undertake to instruct a committee to have these

printed, of course that would be in the form, at least, adopting a plan.

Mr. Bradley: As a member of the committee on accounting, I would say that the suggestion we have made of a permanent committee of three or five was for that very reason. We felt that the systems of accounting to-day are so widely scattered and of so many different styles that it would not be wise to adopt any form at this time. If a committee is appointed by the chair during the year we can receive suggestions, and I think by the next convention we will be able to take the matter up.

Mr. Young: The purpose of my motion was not to instruct the committee to do this, but simply to call for an expression as to the advisability; not to instruct them to publish this.

Mr. Holdoegel (Iowa): I move you that the motion be laid on the table.

The motion was seconded and carried.

The Chair: We have got both papers here now. Possibly we had better go ahead and finish the papers up first. I will ask the secretary first to take up the paper on "Standard Toll Signs," by Mr. Laubach of Ohio, and possibly following that paper it would be a good plan to have the report of the committee on advertising, as they may dovetail in together to a certain extent.

The secretary then read the paper, which was received with applause.

Mr. Hood (Ohio): Inasmuch as about ninety per cent now have the shield I make a motion that we adopt that as the universal sign.

Mr. Dunaway (Texas): The committee on advertising has taken that matter up and will report on it. The matter will come up in connection with the report on advertising.

The Chair: I will call for that committee, if it is ready to report.

The report was read by J. A. Hudson of Columbus, Missouri, and was received with applause.

Mr. Higgins: California will be glad to adopt this sign. We want it. We believe it is the best thing; but we have a suggestion to make—that we be allowed and that all Independent companies be allowed to have their distinctive name at the bottom of the sign. We are known on the coast as the Home Company. I do not believe it would take away the value of the sign to have the name below the shield. California would like to have that privilege—of putting on the word "Home."

Mr. Dunaway: The idea of the committee was to establish some uniform sign, not to restrict the advertisements of each company or each state. We know that wherever the blue bell is it represent the Bell Telephone Company. In the south it is known as the Southwestern, in the north by different names, each one of them, over their blue bell, has the name of its district or company. What we want is uniformity. That is the reason we present it for adoption to the convention. We do not want to restrict anybody from advertising as he wants to.

The Chair: Any other remarks? As I understand it, what we wished to carry out was the exact number of stars and stripes and the arrangement of the colors, but the letters you wished to leave so that they could be changed—that is, the lower line.

Mr. Dunaway: They could make a circle around it. We would like to have the shield taken just like this, "Local and Long-Distance Telephone," and any other advertising they want to make they can do around it, above or below it.

The Chair: It seems to me that the desirable thing to do is to standardize some sign. Now the same people have made a sign—I noticed some company advertising here yesterday. You notice the one over at this side (indicating). It gives the shield at the outer end, and you will notice the local company's name at the side. You can put Home Telephone Company or anything else there.

Mr. Dunaway: I can get another one, Mr. Chairman. I have one with the name of the company on it.

Mr. Hood (Ohio): Mr. Chairman, I make a motion that we adopt the shield.

Mr. Hutchins (West Virginia): I second the motion.

The Chair: The motion is before you, gentlemen. It is ready for remarks.

Mr. Holdoegel (Iowa): Before that motion is adopted, I move that in the motion a description of the shield be included—so many stripes and certain colors, so many stars, and so on.

Mr. Clyde (Alabama): The adoption of the report carries the description with it.

Mr. Thompson (Ohio): Mr. President, I simply rise to ask one question. Is that a copyrighted shield or is it not?

Mr. Dunaway: No, sir.

Mr. Thompson: If it is not, I think the convention here is ready to adopt the shield. On the other hand, if we are booming somebody's business, this convention, I think, will not adopt it. But if it is an open shield that any manufacturer can make, then I think this convention ought to adopt it, because I am satisfied that it represents ninety per cent of the advertising means of notifying people that we have Independent telephone connection in almost any locality.

The Chair: The sign I referred to was this one right here (indicating). Instead of having "Telephone Pay-Station" you can put "Kinloch," "Cuyahoga," "Home," or anything that you want to. Use some of these or some of those and you will soon associate the two names together so that the public will understand what it means. I had a talk some time ago with a gentleman from Minneapolis and he stated that they have taken a large number of signs and put them up and analyzed them, and they decided that while they were very proud of their local company up there, the wise thing to do was to establish some sign that would be uniform throughout the country.

Mr. Clement: Mr. President, I understand from your remarks that the adoption of this sign would not preclude the addition of other marks or the descriptions of other companies. In Philadelphia they might want the Keystone to appear and some might want the Maltese cross. Of course, I have facilities for getting information in patent and trademark questions. The only way in which the right to the use of this shield would be abridged would be the use as a trademark of some manufacturer to indicate the nature and origin of his goods. I don't know of its having been registered for that purpose. I would have to look that up, but I should be very glad to advise the officers and members of the executive committee when I get to Washington. We have a new law that went into force the first of April, and it is rather interesting. We havn't any decisions yet defining it, but I think the field is free to our use.

Mr. Foster (Iowa): I would ask, first, is it intended to use the sign and the square, including the blue and the white ring also, or merely the sign? Second, why can't the Independent Association here take that, adopt it as a trademark, have it copyrighted and protect it for ourselves?

The Chair: As I understand, the recommendation of the committee is this sign here (indicating) with the privilege of putting in lettering around here or changing the word "Telephone" and putting on the name? Am I correct?

Mr. Dunaway: Not take the word "Telephone" off. "Independent Telephone" is part of the sign.

The Chair: You don't change anything inside of the shield. Put the word "Home" down here if you want to.

Mr. Holdoegel: As a matter of information I would like to ask if that shall constitute the sign, and if that background may be made to include any advertising or printing, or does it include the entire square?

The Chair: As I understand, it includes the entire square, blue background, with a white circle. These signs are transparencies for toll boards. They can be changed so as

to have the color put right on the booth. Do you wish, with that understanding, to leave the writing of the description to someone that will see to it that this sign is properly described and included in this motion to adopt? The motion was made and seconded that it be adopted. Are there any further remarks?

Mr. French: I would suggest that the adoption of two colors, blue and white, rather than using the color red, would make the sign much plainer and much stronger. This was brought out by such companies as the Postal Telegraph, Western Union and our contemporary. There is no question that the sign will be plainer at a distance.

A Member: In addition to that, I will make the suggestion that the printer will have to run those through twice on account of two colors, and in small places it will be hard work to use that sign on that account.

E. B. Fisher (Michigan): The last speaker struck a vital point in this question of signs. Early in the movement in Ohio the shield, as we have used it before, was adopted by the United States Telephone Company there and was very popular. We have gotten a lot of good things from the state of Ohio and a good many of us have been pleased with this sign; but the Citizens' Telephone Company in Michigan undertook to make an anlysis of signs on the very line indicated by the gentleman from California. We procured signs of this character—the blue and white, as briefly suggested by him, and the blue bell, which is the sign of our competitor—and we placed them off at a distance and took persons of normal sight to discover which sign was the more conspicuous, the more evident, the more apparent to a man passing up and down the street—the man who wanted to find a telephone office; and of all the signs the blue and white shield was the more evident, was the quickest seen. In Michigan the state association has adopted a sign. The state of Michigan is one of the most loyal members of the National Association, has been ever since there was an organization, and proposes to continue to be; but we would hardly feel, until we had had further action in our state about it—I think the president attended our last meeting—like falling into line without a little further consideration.

I would like to suggest that before we act upon this, since this is the first meeting of this new body, that this whole matter be re-referred to the committee on advertising or something of that kind, and this whole subject be taken up carefully, and that finally out of it shall come a sign, which is copyrightd by the National-Interstate Association. Then it would not be a question as to any manufacturer being given any special rights or privileges, or charging any price he may choose for the product of his factory. And there is a suggestion that the gentleman from Indiana made, that in printing in the papers and letter heads and various other ways the two colors are more easily, clearly, better defined, than the three. Now we are using the two colors in small signs on our letter heads—three-eights inch by half inch signs. If we attempted to use three colors we would get them blurred. Blue ink and white paper readily and clearly print. The red ink would not. I would not like to seem to delay the movement toward uniformity. I think we ought to have some sign.

There is another thought. One of the gentlemen alluded to Canada. The Independent movement is spreading over there. A parliamentary committee under the auspices of the Postmaster-General is making an investigation of the business here. We want to get into Canada. We want our sign to be as universal on this continent as the Bell sign is before we get through with it, and the national shield would not be at present. It may sometime, God willing! We want a sign that will be as general over there as the Bell is, and I would like to see the matter referred and brought up for a complete, full consideration.

Mr. Higgins: Mr. Chairman, in order to facilitate this matter, I believe that I would be justified in moving as an amendment that we adopt the emblem. We can decide colors later on. We need the sign now. It ought to be decided at once. It is the emblem we want. We don't care so much for the colors. If it is to be Canadian color as well as United States, we cannot very well incorporate the colors. Of course, I am willing to admit that the colors now adopted, of course, represent the American flag. I believe if we adopt the emblem instead of the colors we will be meeting the requirement and the desires of the association.

Mr. Holdoegel: Mr. Chairman, I would like, with some pride, to refer to the sign used by the Iowa Association—I think among the earliest adoption of signs—and that is, the blue Maltese cross. It was the first sign adopted by any association, and so far as that sign attracting attention, we have been unable to find any sign that would attract attention more directly; and regarding the colors I think the Iowa delegation would be in favor of the two-color sign in stead of the three-color sign for two reasons that have already been mentioned. One is that the white and blue are very much more clearly seen, and the other is that the ordinary printing house can turn out stationary with the white and the blue, and with very much less expense and trouble than they can where the red is inserted. Perhaps we most of us have noticed that the letters we get from the different houses having the emblem of the Independent telephone movement upon the letter head have the emblem printed in one color on a white background. It is usually black, occasionally blue, and I think we would favor very strongly the adoption of a one color sign on a white background, and if the form of the sign is to come under discussion I would like to urge the adoption of the Maltese cross.

Mr. Johnson (Indiana): Mr. President, in order to facilitate matters here, I move that the committee be empowered to adopt a sign for this association.

The Chair: You make that as an amendment to the present motion? Is there a second to the amendment?

Mr. Clement: What is the amendment, Mr. President?

The Chair: That the matter of adoption of a toll sign be left to a committee on advertising. Is that right, Mr. Johnson?

Mr. Johnson: It gives them power to adopt a sign.

The Chair: When shall they report their adoption? That is what we want to get at.

Mr. Johnson: At the next session of the convention, this evening or to-morrow.

The Chair: I see; at this meeting, at another session.

Mr. Clement: I wanted to ask if we could not possibly reach some sort of conclusion by degrees, perhaps, if we could get an expression of opinion by a vote as to whether the shield, irrespective of the colors, or some other form would be acceptable. If we agree that the form of the shield would be acceptable, the rest might be left to the committee, I think, or reported back for further action.

Mr. Thompson: In order to facilitate matters, I am going to offer a motion.

The Chair: An amendment to the amendment.

Mr. Thompson: I make a motion that the president call for a rising vote——

The Chair: I think we are out of order. We have an amendment to a motion to act on first.

Mr. Thompson: Then I am going to talk on it first. I am not going to antagonize either the amendment or the motion, but I am going to ask, and I believe the proper way to obtain an expression of what this body wants is to call for a rising vote upon the question whether we shall have a one-color or a two-color sign, and I think that it ought to be had. I think that that will enable us intelligently to decide what kind of a sign we want. If ever we needed a sign we need it now, and we do not want to wait until next year. Now, Mr. President, regardless of these motions, I

think it is proper and right that a vote should be taken of this convention whether or not we shall have a one or two-color sign, and the design the shield. I am in favor of that.

Mr. Holdoegel: I think perhaps it would facilitate our forming a judgment in regard to these signs if the chair or the secretary would place the blue Maltese cross beside the three-color or two-color sign, so that the convention can see how they appear. I desire especially to call attention to the words "Local and Long-Distance," which are very clear and distinct on the Maltese cross and are very obscure a half block or a few blocks away on a red shield.

Various signs were then exhibited.

Mr. Tarte (Michigan): It seems to me, gentlemen, that the thing we are all trying to do is to call the attention of the public to the fact that we are Independent telephone companies. If they know that we are Independent telephone companies, most of them know that we do both local and long-distance business, and the particular combination of colors that we have doesn't cut very much figure. We want people to know we are patriotic, of course, but the one most important thing to get to people's minds and eyes is the fact that we are Independent telephone companies, and when they see a certain sign in front of a drug store, a blacksmith shop or anywhere else, it means that they can go in and use the Independent telephone. It seems to me, that looking at those signs, the most prominent is the white ground and blue shield. You take the Iowa sign. It is a good sign, but the words "Independent Telephone" do not show on there at all. Look at your combination of red, white and blue, and I do not believe there is a man in the room, standing where I am, who can see the word "Independent" there. I can just make it out. I am from Michigan. The Michigan state association has been using this white field and blue shield sign for a good many years. We have spent a good deal of money in advertising. Our principal advertising is on the streets, street cars and base-ball grounds, "The Sign that Saves you Money," and the people of Michigan know it is the sign that saves them money; and I think that that is the sign, not necessarily in that form, but I believe a combination of blue and white is the best we can get.

Mr. Holdoegel (Iowa): I would like to call attention to the fact that the signs we are using in Iowa have the words "Independent System" upon them. Here is a glass sign (indicating), which is just what we are using in Iowa. It is the sign with the words "Independent System" on the Maltese cross, and I would suggest that if we desire to make our sign a continental sign, the Maltese cross might be more acceptable to other countries than the United States shield would be.

Mr. Sapp (Ohio): I rise to suggest that the parliamentary situation seems to be this: The committee appointed has made its report, recommending the adoption of the shield with three colors; adoption of the report has been moved, and we are now at the parliamentary stage of commenting upon the adoption of the report and the motion to adopt it.

The Chair: That has been amended since, Mr. Sapp, to leave the matter to the committee.

Mr. Sapp: I rose for offering as a motion that the report the committee has made be laid upon the table; that the committee be continued still in the discharge of its duty, and that it be continued, in view of the discussion we have had and the exhibit that has been made here, with instructions to report to-day at a later time; and it has occurred to me that if the manufacturer's agent who is here, and who seems to have inexhaustible resources, can produce a blue shield similar to the first one here, with a wider white margin, we would like to see it. He seems to be able to take up anything here.

Mr. Glass (Kentucky): I second the motion.

The Chair: You have heard the motion, gentlemen, to lay the other motion on the table and give the committee further time to report, which takes precedence over the other motions, as I understand.

The motion was carried.

Mr. Dunaway (Texas): Does that carry with it all the report of the committee?

The Chair: They are to report at a later session.

Mr. Dunaway: Does that carry with it the whole report or only the sign?

The Chair: Just the sign part, as I understand it. Is that what you meant, Mr. Sapp?

Mr. Sapp: That is the matter of the most pressing importance—the form of the sign and its color.

The Chair: Then we will adopt the whole report this afternoon. This committee will now say, before we get through our morning session, where they will meet and when, and if anybody has anything to say to them they can be heard, I suppose.

Mr. Hudson: I would like to ask the members of the committee who are present to meet me in one of the other rooms.

Mr. Ebergard (Nebraska): I will ask the gentleman from Michigan to meet with us a few moments, too, Mr. Tarte.

Secretary Tetu: Gentlemen of the convention, I have been requested to ask those members of the association who have not registered up to this time to come to Room 230 as soon as the convention disperses and register, if you please.

The Chair: Mr. Gary has called my attention to the fact that the committee on accounting this morning recommended the appointment of a permanent committee. Shall we have that committee appointed now or leave it to the executive committee to arrange later?

It was moved, seconded and carried, that the matter be referred to the executive committee.

The paper on "Value of Telephone Securities," by A. B. Greenshields of Philadelphia, was then read by the secretary, and was received with applause.

The Chair: Gentlemen, you have heard the reading of this very excellent paper of Mr. Greenshields of Philadelphia. I will say that he has had a very broad experience in the banking business and also in the security business and knows fully what he is talking about. Are there any remarks on this paper?

Mr. Fisher: Mr. President, because our secretary read that paper, I naturally assume that Mr. Greenshields is not with us.

The Chair: That is right.

Mr. Fisher: That paper is one of the clearest, most concise, most admirable documents of this character ever read before a body like this, and I want to make a motion that the president of this association be instructed officially to return the unanimous thanks of this body to the author of the paper for his kindness and for the excellence of that paper.

The motion was seconded and carried.

The Chair: Are there any remarks on the paper, any one here that wishes to say anything on this subject?

Mr. Stoltz (Indiana): It seems to me that this very excellent paper should be read more by people that are not in the telephone business. It is very unfortunate, it seems to me, that we cannot get such papers as that before the people who buy these bonds to a certain extent. Would it not be a very excellent idea for some of us to have a copy of that paper printed and distribute it among the local investors of our bonds?

Mr. Young: Mr. Chairman, I believe the question of the financial end of our Independent enterprises is vital to every one of us here. Preliminary to my remarks I would like to know if there is any one particular company represented here that has absolutely all the funds that it needs

for its construction purposes? If there is, I would like to have them rise.

Two gentlemen rose.

Mr. Young: You are to be congratulated, gentlemen. I believe this question of the value of our securities is one which should receive our most careful attention. About a year ago I was introduced to a prominent banker here in Chicago and the matter of telephone securities came up. He was a German, and he told the whole story when he said, "I don't want any bonds when they are secured by mortgages on wires und sticks." Gentlemen, that was his conception of the Independent telephone situation, and where did he get that conception? He obtained that conception from reading the literature that has been put abroad in the financial journals in this country by our great competitor. It is a well established fact that our competitor has attacked our work in the most vital part; they have hit us in the pocketbook. They have carried on a systematic education throughout the financial journals of this country, attacking the character of the securities that we offer to the public; and if you want to find out what the general opinion of the moneyed interests of this country is relative to Independent telephone securities, go out and offer some proposition that has been financed, and financed upon a legitimate basis, and see what your answer is from the man that has got the money lying in his vault and seeking for a good investment.

Now I believe that it would be advantageous for this organization, in connection with our bureau of advertising, to create a permanent committee in this organization whose sole work shall be the education of people as to the value of telephone securities. I believe that we cannot do anything that is more vital to our interest than that very thing. Tell me, why is it that the securities of a corporation that can show that it is operating upon less than fifty per cent of its gross cash income every year and doing it legitimately, without any juggling of accounts, should go begging, while some other security that shows upon its face that it is taking from eighty-five to ninety per cent of the gross income to operate the property sells readily? I tell you, gentlemen, that there is something wrong. There is a nigger in the wood pile, and that nigger is spelled B—e—l—l. And if we do not do anything else to-day, let us take up this matter in a permanent way regarding the education of the general public as to the value of the securities of the Independent properties.

Mr. Gary: Mr. President, I have had a little to do in financing small deals. I belong to the class of telephone men that I term the "one-gallus fellows," dealing in a small way over in Missouri. I have lately been able to interest capital. I have worked hard for a long time. I found that I was working on the wrong line, and I think that, in a good many cases, we are to blame ourselves. Probably we are excusable for not knowing, because we must learn these things before we can progress. In my case I launched a scheme, and I presume when I state my own experience I state your experience very largely. I financed it on a basis that the bonds were unquestionably good—two or three dollars in actual value and in expenditure back of the bonds, which made that issue perfectly good. I could not sell that issue of bonds to the men who did not understand the telephone business that we have been talking about. I could not sell that issue of bonds to men who did understand the telephone business, for the very reason that was alluded to in this paper, that our investment depended on the maintenance of the system, and there was no provision in my first bond issue for the maintenance of that plant. Therefore, I could not sell my bonds to the man who understood the telephone business, the financial end. I could not sell—none of us can sell the securities to men who do not understand the telephone business, and we cannot sell, as I want to make clear, our securities to people who do understand the business unless we finance our plants on the right line. Therefore, in any plan that we start to run our business on we must look to the future, a long way in the future, and provide ways and means to raise funds in the future. That has been my experience, and I apprehend that it is the experience of a good many others, that we do not look far enough ahead. We had to learn this business.

I am new in the business comparatively, as we all are—that is, most of us, especially in getting funds into the business; and that is the trouble, as I understand it, that we have not impressed the investor with the permanency of our investment and with a permanent plan to take care of the business as it grows. For instance, we start out with a $10,000 proposition; we get the money without any trouble, because we have some personal standing in the community. We put that money into the business and in twelve months we go to our banker again, and say we need $5,000 more money. He says, "All right, sir, you can get the $5,000." We run along for six months more and we go back to our banker and say we need another $5,000, and he says, "Good heavens! Why don't you stop? You are getting too much into the business." The fact is, he is placing our business on the same plane as an ordinary investment; he puts us on the same plane as the ordinary manufacturer's business is based on, that we can close our plant account. That we cannot do. We all know that cannot be done. Therefore, we must provide some way in our original issue of bonds that will take care of the future growth.

Mr. Root (Michigan): I would like to inquire how you do that.

Mr. Gary: One way to do it is, if you need $10,000, to provide in your mortgage that you may issue $50,000 or $100,000, that you issue your $10,000 on your present plant and then provide in the mortgage for future issues based on certain amount of improvements to be ascertained by the trustee in a certain and fixed way. In that way you will provide a basis to get all the capital that is necessary, and that is the only way to reach the man who understands telephone financing. The other man won't furnish us money anyway.

The Chair: Any further remarks upon this subject?

Mr. Young: Mr. Chairman, speaking of the value of telephone securities, I have had one question brought to my mind very forcibly, and that is this fact, that some of the securities that were first issued were issued not upon the value of the property, but upon a so-called estimated earning so many years hence, and there was not provided in that mortgage any provision for creating a sinking fund for the retirement of those bonds, and I believe that an investigation of the character of the bond issues and the methods of retiring those bonds on the part of this association or those interested in the financial end of this proposition would be of very great assistance to us in arriving at a solution of this question. I believe every bond issue that is provided should have a sinking fund created that will be sufficient to retire those bonds within the period provided for in the mortgage. I believe it is a question that should enter into every mortgage issue. Some of the mortgages that have been issued have provided a clause that this mortgage may be retired after five years at 115, and that very same bond has been sold on the markets at fifty per cent of its face value. That is the kind of a proposition we are up against, and it is the kind of a proposition that this association wants to sit down on. We do not want any more of that kind of financing in the telephone business if we undertake to continue in the business.

The Chair: I would like to say that my experience in Chicago has been a little different. I called in a certain bank here in the city one day to see some friends of mine, and was discussing the telephone business with one of the officers. He said they never dealt in telephone securities because they did not like them, due to the fact that the Central Union and the Michigan Telephone Company had

been very badly managed, and they didn't want anything to do with them. So other people besides the Independents have had trouble in financing. There is no action that can be taken by this association that will prohibit Sam Jones or Bill Smith from going out and building an exchange of 5,000 telephones and mortgaging it for $5,000,000. They have done it in railroads and steel and other industries, but I believe that operating companies who are dealing in their own securities and handling them, are putting them up on a permanent basis. The question of sinking fund is a very broad question. Take our big steam railroad companies, and I think you will find very few of them that have sinking fund clauses in their mortgages. Most of them figure on retiring them at ninety-nine or 150 years and getting the money at the rate of two and a half or three per cent. The question is whether our properties are going to be worth any less in a hundred years, keeping them up as they should be and renewing them when they need to be renewed.

Mr. Thompson: Mr. President, there has been considerable discussion of this subject, but I am going to ask the convention's pleasure for a moment, because there is a question that I would like to have answered. It is this: We are now entering upon a new era in Independent telephony. We have organized an association, a National Association. The reason for this organization was that we might be able to present our business to the American people upon an intelligent and businesslike basis, and if there is anything on earth that the Independent telephone managers need, it is investors in our securities; and if there is anything on earth that this association can benefit us by it is by formulating some plan to get before the American people the value of Independent telephone securities. There is only one way that this association can advertise their value, and that is to arrange some plan by which members of this association shall finance their companies, arrange some system of accounting by which financial men can understand what you have, and let the individual members of this association in each state association adopt those two plans, so that then throughout this entire territory an educational bureau can be established giving out the value of Independent telephone securities. Then we won't be advertising some man's bunco game. Therefore, if there is anything, I say, that this association ought to do, it ought to take up these two things: First, to educate the people so that we can secure investors to legitimate telephone enterprises; second, to arrange a system of accounting so that those financial institutions can send men to investigate and understand our plants and the value of our plants. Now it seems to me that this association was designed for that, and I undertake to say that there will be such committees established by this association and such rules and such regulations and such means adopted as will bring this about. Is that right, Mr. President?

The Chair: That is one of the points that have come up.

Mr. Fisher: Another matter, Mr. President. You properly suggested that this association could not very well prevent Bill Smith or John Jones from bonding a 5,000-telephone plant for $5,000,000 if he could find purchasers for his securities. While that is true it is also true that the membership of this association, the membership of the state associations which send us here, can refuse to fellowship with men of that ilk, can give them the cold shoulder, can turn them down so hard that they won't have any field. Now we want the right standards of morality and ethics, of legitimacy, of soundness in all our action, and we can educate ourselves and our neighbors and the newcomers in the field. We can send out an influence, a sentiment from here, as my neighbor from Texas suggested. Then if a man starts with a scaly proposition, if his finance is frenzied, we will have none of him.

The Chair: As I understand, there has been no motion made to accept this paper and place it on file, simply a motion made to have Mr. Greenshields thanked, so if some one will make a motion to that effect, I will entertain it.

Mr. Clement: I move that the paper be accepted, and printed or placed in the files.

The motion was seconded and carried.

The Chair: It is now eight minutes of twelve. We got a pretty early start this morning. There are a few accumulations on the secretary's desk. Will we have those, and have the balance of the reports after lunch, or shall we go on with the balance of the reports at this time? What is your pleasure, go ahead until 12:30?

Mr. Beard: Mr. Chairman, I think very few of the delegates present care for luncheon before one o'clock, and I think we will make time by working till one.

Mr. Young: I rise to a question of privilege. I would like to state that there are quite a number of Ohio telephone men present, and for the purpose of a better acquaintance I would suggest that those from the Buckeye state meet at this end of the room after we adjourn, for a few minutes.

The Chair: You have heard Mr. Young's request.

Mr. Clement: If we are going to work until one o'clock, wouldn't it be a good idea to leave as clear a field as possible after luncheon for the committee now considering the sign question? That is going to be a vexed question and it is the most important matter we have got to settle to-day. That sign has got to be out and to be used. The raisin people of California spent $750,000 learning that they have got to have a distinctive sign for their advertising. If we are going to be a national body, we must be a national body all over the country. It is going to take more than five minutes to decide that, because I have seen some of the committee.

Secretary Tetu: I have simply one announcement to make, gentlemen. A representative of the passenger department of the Pennsylvania Railroad Company will be in this room at the close of to-day's meetings for the purpose of answering questions concerning fares and time of trains on that road.

The Chair: I wish to say in connection with that, gentlemen, that the question came up in connection with getting reduced rates to the convention. We should have had to guarantee in order to get those rates at least 100 in each association, Eastern and Western Traffic Association. We could not get any assurances that we would have that many from each of these districts who would come on straight tickets. The majority of the delegates, we found, were traveling on mileage, and some few on passes. The only way would be to give everyone instructions to buy a straight ticket and then if we were not able to secure the required number they would have to go home on their mileage or pay full fare on the return. It was decided by the committee not to take it up and make the guaranty. We can get some idea from the convention what number you will have, and I think it will be well to get an expression as to whether you would like the committee to arrange for next year or not arrange. If any one has anything to suggest, I would be glad to hear it.

Mr. Tarte (Michigan): It would help us some perhaps in answering that question to know where the next meeting is liable to be held. If it is going to be near the center here, a good many people from Michigan can come by boat.

The Chair: Of course that is a question we cannot answer at this time, but supposing it were held in Chicago, would you like that committee to make that guaranty and ask everybody to come on regular tickets?

Mr. Thompson: I presume that, at least, quite a number of gentlemen here are traveling on passes, and I hope that by the time of the next meeting we will all travel on passes. I do not believe that there is anything that is more annoying to an association than to attempt to deal with railroads, and secure reduced rates by the system of getting certificates at the various stations all over the country, and then

meeting with the committee after the Association is over. I have had my time with it, and I do not believe it will pay. We tried it in Ohio, and it cost me about three or four trips to Cincinnati, and the Association an expenditure of thirty or forty dollars, and then a turn down by all the railroads because some technical features were not carried out. I think we would find the same difficulty in Chicago. The last time I was here, fortunately I did not have to go to have my tickets verified. I had a pass.

The Chair: We will now proceed with the reports of the convention. The next will be the reports of the Committee on Standard Equipment. I understand they are ready to report. Mr. Clement of Washington has the floor.

Mr. Clement then read the report of the committee.

The Chair: You have heard the report of the committee, gentlemen. What is your pleasure with it?

Mr. Root: I move its adoption.

The motion was seconded by Mr. West and carried.

The Chair: We have with us to-day Mr. Dagger, representing the Canadian government. The parliament has appointed a committee to make an investigation of the Independent telephone movement, and the matter has been referred to the Postmaster-General as chairman of the committee. Mr. Dagger appears to-day representing their committee to get information. I do not know how far he wants to go on the subject, but we would be pleased to hear from him anything he has to say. He was sitting here a few minutes ago. I thought he was still in the room. He has gone out, so we will proceed with other business. The secretary has the names of the committee in regard to the memorial resolutions on the death of Judge Thomas.

The secretary read the names as follows: Dwight B. Sapp, Ohio; E. B. Fisher, Michigan; F. L. Beam, Ohio; George W. Beers, Indiana; Bert G. Hubbell, New York.

The Chair: You will see to getting that committee together, Mr. Fisher, and take the work up some time this afternoon? Is the Committee on Rules and Regulations ready to report?

Mr. Tarte: Mr. Chairman, we shall undoubtedly be ready to report this afternoon. We are not ready yet.

The Chair: Is the Committee on the Arrangement Between Manufacturers and Operators ready to report?

Mr. Barber: We shall be ready to report this afternoon.

Mr. Tarte: Will you ask the members of the Rules and Regulations Committee to meet in this room after adjournment.

The Chair: Will the Committee on Rules and Regulations see Mr. Tarte right after adjournment in this room? There was a committee appointed to meet the manufacturers. Is that committee ready to report?

A Member: They are just in session, Mr. President.

The Chair: They will report then this afternoon also. Has the Committee on Credentials any further report to make? We have some time yet, gentlemen, and we seem to be held up now for reports of committees that are going to take up work this afternoon. Do you wish to have any papers read that were passed over this morning?

Mr. Fisher: The Committee on Nominations would not like to seem officious, or meddlesome, or pertinacious, but in the discussion of the persons presented to your consideration for officers a plea was made especially for the necessities of Indiana. Indiana has been afflicted of late, seriously so. It was finally suggested to the representative of Indiana on that committee that the members of the executive council of this body were perhaps more active than the vice presidents; and finally the chairman of that committee was instructed to ask the president and his cabinet that in the naming of an executive council of eight members it was the particular desire of the committee on nomination that Indiana should furnish at least one of that council. Now we feel that under all the conditions and circumstances it is not unfair or impertinent to present that thought to the president of this body. We feel that he himself would naturally recognize it, but we want to emphasize the fact among our neighbors, so that we could all come to the help of Indiana if at any time anything further threatening should transpire; and we wanted thus to assure Indiana of our sympathy and of our best efforts and energy, especially at this time. In that spirit I hope that the president and his colleagues of the official board will accept this suggestion from the committee on nomination.

The Chair: Mr. Fisher, I wish to assure you, as well as your associates, that I shall take very great pleasure in carrying that out, and I hope that the other officers will approve of it. That was one of the last promises I made Mr. Sheerin. Yesterday morning he was in my room a little while before coming to this meeting, and he said he understood it was talked that I should be elected president, and he hoped that if Indiana could not be represented in an official way, we would take care of them on the executive committee, in some shape. He had no suggestions to make as to who should be their representative, but wanted someone. Of course Indiana has been seriously afflicted since that time and I should consider it not only a duty but a very great pleasure to carry out the promise I made Mr. Sheerin, which is the last I ever can make him. The roll call of states has entirely slipped my notice this morning. It was on the programme for yesterday afternoon's session. The question is now, shall we take that up before lunch, or take it up the first thing after lunch? Are the states well represented at this time?

A Member: I think not. I should judge from the vacant chairs that they are about all out.

The Chair: I think, gentlemen, inasmuch as all the committee reports have been delayed, it would be well for us to adjourn until two o'clock sharp, and then come back and start the convention off with the roll call of the states. I would like to have the member of each state that is here in the room see that his state is properly represented at two o'clock, because we have a lot of work to do this afternoon, and we want to get through with it. You may consider yourselves adjourned, gentlemen. Those of you who are on committees will meet with the chairmen.

AFTERNOON SESSION.

The convention met pursuant to adjournment; President Hoge in the chair.

The Chair: The Secretary will first call the roll of the states, and I wish to make this suggestion before he commences: There are certain sections of the country—perhaps two or three states—that probably are represented by only one person. We have here a Boston gentleman, there are some who represent the northeast part of the country, and I think there are some here from the south and southwest, representing practically the same condition of affairs. It has been suggested that each gentleman give his name and the state he represents as he answers. The idea is, Mr. Secretary, to have each review briefly the condition of the telephone development in his state.

The Secretary: Alabama.

W. H. Bryant (Mobile): I cannot speak for the entire state—we have no state organization—but our city is just now in very fine condition. While I can only report now 650 telephones, we have every reason to believe that in a short time we shall more than triple that number.

The secretary continued calling the roll, receiving no response until the state of California was reached.

P. P. Spencer: California has recently organized an association called the California Independent Telephone Association. We have now probably 40,000 telephones altogether in the state, although our first meeting was June 3, and they were not all at that time represented—probably about twenty companies, representing some thirty-five exchanges. An effort is being made to get a franchise in San

Francisco, and if we succeed—as the same men are at the head of the San Francisco enterprise—beyond any doubt we will make great strides next year. However, in southern California alone, we have done very well. Los Angeles has 200,000 population and 20,000 telephones. The same is true of most of the outside towns. In southern California most of the outside towns were built up about the time Los Angeles was and they are connected with about 1,500 miles of long-distance lines, so that we think we are pretty well taken care of at the present time. So far as securities go, I think we are probably more fortunate than in the east. We have not the same things to contend with. In fact, we have learned something from the experience in the east. In California our securities stand A1. On the Los Angeles Exchange the bonds sell from 95 to 96, and there is a good demand for them—a strong demand; the stock stands about 61 to 62. I think we have reason to congratulate ourselves when I realize from the talk of some of the gentlemen what you have had to go through with here. We have three delegates from California, and we feel that we have been benefited by coming here; we hope next time to be represented by more of us. We certainly appreciate the privilege of belonging to such an association as this.

The Secretary continued calling the roll, receiving no response until the state of Illinois was reached.

C. A. Camp (Henry): I am from Peoria district, a small town in that vicinity. I am also vice-president of the Central Illinois Telephone Association, which we organized down there some time ago. Of course, I am not familiar with the entire situation in the state of Illinois, but I do know that down in our country the Independents are "cleaning them up" very nicely. Peoria has recently established a new Independent exchange. They put in about $250,000 there in a first-class plant and just recently got started, and nearly all the towns in the vicinity of Peoria have strictly Independent exchanges. Of course in Springfield, Bloomington, Decatur, and those towns, there are two exchanges, but we expect within the next five years to "put it over" the Bell telephone company down in that part of the state. Everything looks very favorable. We are now endeavoring to connect all the Independent exchanges down there with first-class connection, metallic copper toll lines, in the expectation that in the near future we shall be able to talk all over the country, and we expect the Independent companies to become the long-distance people of this country, which they evidently will before a great while. I see Mr. Conklin of Peoria just stepped in the door. I would like him to make a few remarks if he wishes to. Perhaps he does not understand just what we are doing. Mr. Conklin is connected with the company that has recently put in the exchange at Peoria.

The Chair: Mr. Conklin has been called for. This is the roll call of states, Mr. Conklin.

Mr. Conklin: I don't know that I understand.

The Chair: We are calling the roll of states now, and each state is responding to the roll call, telling briefly of the situation in that state, and making any statement they may have to the convention.

Mr. Conklin: The state of Illinois is partially organized in districts. The northern part of the state, the territory comprehending three or four tiers of counties from the Wisconsin line, is included in the northern association. We have then an association in the southern central part under the name of the Illinois and Missouri Association, comprehending a strip of probably three tiers of counties across the state with the center north and south at the latitude of Springfield. Intermediate between the southern and northern there is another association known as the Central Illinois Telephone Association, comprehending the territory in between the two. The work done by the Illinois and Missouri Association has been very effective and harmonious throughout. That of central Illinois was only organized within the last year. In the northern part of the state the organization extends over a long period of time, but there have been but three meetings, I believe, of the association, and I think the prospects are very bright for a meeting to be held the first of August, with invitations to all the Independent companies throughout the state, the meeting to be participated in quite generally and to decide the question of becoming part of the national organization under the plan adopted in Ohio and other states. That is about all I can say.

The Secretary: Indiana. (No response). Indian Territory. I have here a note referring to Indian Territory, at least to one city or town. This refers to the Chickasaw Telephone Company of Ardmore, Indian Territory. This company is operating five exchanges, the largest one of which at the present time has 1,000 subscribers, and between the five exchanges, or radiating therefrom, are connected up 250 miles of toll lines.

The Chair: Iowa.

Mr. Holdoegel: In the absence of our president, the delegates from Iowa have asked me to make an informal report. Our state association was organized in 1896, after a preliminary meeting the year before, and has been quite active ever since. We have now in the state of Iowa about 220,000 Independent telephones, and of the exchanges in the state of Iowa 87½ per cent are Independent. A member of our delegation sitting at my side has to-day held a long conference with the Superintendent of Telegraphs of one of the great systems of railways in the United States, in which the superintendent stated to him that Iowa seemed to be the one state in which the Independent people have the Bell people entirely on the run; that if the Independent people would stop throwing stones at the Bell, get together and telephone together, the fight is won. So we feel that we are justified in putting the sign upon our emblem, "In this sign we conquer." You remember we made the statement that our emblem, the Maltese cross, was the first emblem ever adopted by any state association, in 1897. My brother at my side here says that it has been the emblem of conquest. Our state association has affiliated with the national association and is ready to act in accord with that association in anything it may do in any manner that will better ourselves, assist our brothers or the association.

Mr. Fisher: Perhaps the gentleman from Iowa will tell us two things in additon: What proportion of the 220,000 telephones are rural, and what foundation of fact was there in the report in sundry papers within the last two months that the Bell company has admitted defeat, in fact had withdrawn and had at the same time entered into relations with certain of the Independent companies in that state.

The Chair: We shall be glad to hear from the gentleman on that subject.

Mr. Holdoegel: Mr. Chairman, there are a few companies that I know of that have established relationship with the Iowa company, which is the branch of the American Bell for Iowa, but I do not know of any large company operating exchanges that has done that. We have a few places in which the Bell people have made a very hard fight for the rural lines, offering quite large inducements to the rural lines to join the Bell switchboard in town in order to hold the town subscribers, as we in the Independent field have found that our greatest source of strength in the rural communities lies in the fact of our having the farmers in large numbers connected with our local exchange. In our own company's exchanges I could name five or six or seven of them where it would be impossible to get farmers' lines under any other management than our own, because of the fact that the subscribers are not there. I know that is being done, or the Bell people have been trying in a number of instances, and I knew of some Independents who have operated with the Bell are terminating their contracts as they expire and joining with the Independents, but I

think there is no large number of Independent telephones in Iowa that are in operating contract with the Iowa Telephone Company. I don't know anything that has taken place recently. Can you suggest the name of a place?

Mr. Fisher: The item to which I referred was in the Associated Press dispatches, and copied into a large number of papers in Michigan. It was substantially to the effect that the Iowa Independent had won the fight against the Bell company in that state, that that fact was acknowledged by the Bell company, and that they had recently admitted it by a practical action which was in this wise, leaving the people to continue absolutely Independent and retain all their Independent relations, they in some cases having made arrangements for an interchange of long-distance service. The point of it in our state is, we understand, that the American Telephone & Telegraph Company absolutely refuses to do any more than wink at the use of Independent service with the Bell apparatus. They may for a few weeks interchange, but their thought is that no service is to continue long without it uses Bell transmitters. It was said that the parent company had abrogated that clause in its contract in the state of Iowa, and had openly consented to an interchange of business with Independent receivers and transmitters. Now if that is true, it is a significant development. Mr. Tarte, the general manager of the Citizens company, and myself, in reading it over said we suspected it to be a Bell "ad" for use elsewhere, and hearing from the gentleman in Iowa I wanted to know if our suspicions are well founded or not.

Mr. Holdoegel: In reply, I would be glad to turn this over to Mr. Miller.

Mr. Sapp: You might kill two birds with one stone. I would suggest before Mr. Miller replies that the point Mr. Fisher has brought up is such as we have met in Ohio, the insidious character of the approaches made by the enemy. The element that you so carefully protect in Iowa has been recently developed in this form: An organizer appears in a community where Independent operation is going on. We Americans are so constituted that we cannot all get into the band wagon and often there are a few disgruntled ones. He approaches them and says, "See what your neighbors are doing in the telephone business, and we are prepared to go into the business with you." The proposition is carried forward along these lines and a group of men is gotten together. It takes tangible shape in this form: "We will organize with a capital of say $10,000; we will contribute half of the capital and will ask you to contribute the balance locally; we want the stock taken in small amounts, and we want it distributed as widely as can be." They project their enterprise, their stock is distributed and taken in amounts of from $50 to $100, the purpose of which is, of course, obvious, that the influence of the movement shall be as widely extended as possible. Then comes the matter of getting into practical operation. There has been a contract after the group of men has been incorporated and they get into definite form a contract is proposed for execution, and that contract, gentlemen, if it is new to any of you, is a fearful and wonderful thing. It is, in a mild and quasi-legal form, the most outrageous proposition that I think I have ever seen. It is confiscation disguised under verbiage which is calculated to deceive inexperienced investors. We are developing that in Iowa. We are showing that under the lion's skin a donkey is concealed, and are demonstrating the risk that is assumed, and the danger that the local investor exposes himself to in encouraging any such fallacious enterprise. I probably rise at an inopportune time, but I thought we might develop from what you may answer to the questions propounded somewhat similar tactics adopted in your state. The contract, to bear more particularly on that, is one which amounts to this: that the operating company, which is essentially a sub-licensee company not of the A. T. & T. Company, but of the Central Union Company, goes on with a preamble reciting that the Central Union is a sub-licensee company of the A. T. & T. Company, and in virtue of its sub-licensee contract is permitted to furnish transmitters, etc., to the particular company which is to be organized; and they further state that within certain well defined limits this particular company may develop the territory and operate, and if the development within a certain time, which is limited, is not to the satisfaction of the Central Union Company, the Central Union Company reserves the right to enter upon, after ten days' notice given to the operating company or persons having charge of its principal office, take possession of the apparatus and of the system, and return to the operating company a price which shall represent the original cost, less reasonable depreciation. There is nothing under the blue canopy in the contract which defines what reasonable depreciation shall be, or by whom it shall be ascertained. The investors, and there have been some few in our section, have put their money in, and the natural inquiry which now arises is, what is to become of the stock we have acquired? What is it except an indefinite undertaking on the part of the Central Union Company to furnish apparatus at a certain figure and permit us to use it during their good pleasure, and when they see proper to take possession they may step in and take possession? Is there something of that sort existing in Iowa?

Mr. Miller: In Iowa we go a little further than that. I think that their contract is somewhat similar to what my friend has given you, but it provides that the operating company shall use not less than one-third Bell transmitters and receivers, leaving them to purchase two-thirds from any operating or manufacturing company that will furnish them. At Webster City we have an exchange of 1,000 telephones, central energy system and something like 30,000 feet of underground cable. They promoted a company in this city similar to the lines laid down by my friend, who put in central energy equipment furnished by a well known concern, less one-third transmitters and receivers. The consideration was that they were to pay them twenty per cent of the cash total receipts. They put not a dollar in the company. They started it under those circumstances. They will connect with any company who will agree to use one-third Bell instruments, that is, transmitters and receivers, and they never count up the telephones after the contract is made, so that practically in the state of Iowa it is possible for an Independent company to connect up with the Iowa Telephone Company on that kind of basis, the only strict requirement being that they shall not connect with any Independent competing toll line.

Mr. Sapp: That is the point I wanted to get at.

Mr. Miller: In the northern part of the state we have what is called the Western Electric Telephone System. It is owned by men in the northern part of the State who have a contract with the Iowa Telephone Company to use Bell equipment. They use some of the equipment, enough to take the curse off, and pose as an Independent company. They have not had their lines paralleled yet, but they are getting it very fast. I connected for a time with the Bell company because there was no Independent long-distance line. I think I connected with them two years, but finally it got to a point where whenever we got a call for somebody out of town they had to send a messenger after them. That was my cue to disconnect. We now have territory entirely surrounded by Independent toll lines, and our toll service is 50 to 75 per cent better than the Bell company's, anywhere in my part of the state.

Mr. Hamm: Mr. President, I should like to have a little further information as to the Bell company in the eastern part of Iowa. The exchange, or rather the system, in which I have been, is called the Davenport and Tiffin district, and comprises seven exchanges. About three months ago the Bell brought new material on the grounds, and an-

nounced their intention to rebuild the exchange at Tiffin,—to build exchanges in the smaller towns, and fill in the country lines. They made a great display of material and solicitors on the ground, and asked the farmers to build their own lines in that place and pay them a switching connection of fifty cents per month. They made another sort of an offer whereby the farmers would accept their own, that is, the Bell building, lines and material and telephone connections—same price, fifty cents per month. This was entirely overruled, both by the farmers and the business men of the city, the business men voting to have nothing to do with the Bell operation. Consequently the material lies idle, and the new exchange will probably never be built.

The Secretary: Kansas.

George W. Watson: I am from the southwestern part of the state. I don't think the secretary is here.

The Chair: We will give you time to get him and call you again.

Mr. Holdoegel (Iowa): Just a word about Bell tactics. We have two cities in the western part of the state without Independent exchanges. Those are building. A little while ago in one of these cities there was quite a question of franchise, and the Iowa company was reported to have seen fit to invest considerable money down there to prevent Independent people from getting a franchise, and one of the arguments that they used in opposition to the franchise was that they had large connections with telephone subscribers in and about this city. There were a number of companies, one in particular, very strongly approached by an individual who might have posed as an Independent, soliciting a meeting with the officers of the Iowa company to form a contract for connections with the Bell exchange or the Iowa Telephone Company's exchange at Council Bluffs. In this effort, however, the Independent people in that section saw in a moment what was up, and none of them was induced to take hold of it, but the persuasions were very strong. That is one of the tactics we have met in Iowa and by which we have not been overcome.

The Chair: Iowa seems to take good care of its Independent people, and takes good care of itself.

The Secretary: Kentucky.

Mr. Cole: Mr. President and Gentlemen: I am not aware that Kentucky is represented by any state organization. I represent several of the large operating exchanges. We had a state organization and it was quite successful for three or four years, but for the last two or three years it has not been very generally attended, not that we are not interested in the cause of Independent telephony, but we are geographically stretched out pretty nearly, half way across the continent, and it is much easier to get to Chicago from our town than to that portion of our state which is more developed in telephone work, aside from Louisville. The work in the state is in a prosperous condition. We, of course, are not developed like Iowa. In the first place we have not the territory, the population, or the class of people that Iowa has to make a large report according to population, yet there never has been a time when the outlook was so good for Independent work. I presume my statement will be no different from that of nearly every gentleman on the floor, from whatever state he comes, that the difficulty is to keep up, to meet the demand. In the section I come from, western Kentucky, the demand is unprecedented, and the pleasant feature of it is the demand from the farmer community. We are unable to keep up with the demand. So far in the sections I am familiar with, the Independents have been able to hold nearly all the farming business.

There are some cases where farmers have built their own exchanges, their own lines, and have entered into contract with the Bell people, or the Bell people have entered into contract with them; they build a line from town and connect with them for as low as $2 a year service, the condition of the contract, which is frequently and almost always a verbal one, is that the whole matter can be terminated or changed at will by the Bell people. As far as the number of telephones in Kentucky is concerned, I am not familiar with the statistics, but I know we have between 25,000 and 30,000 Independent telephones in the organized companies of the state. There is a very large number of farmers' lines that are not in this estimate. On the whole I can report that we are pretty nearly abreast of the times, and the interest that is being taken now ought to bring us fully up to the average of the states represented here.

One word about the long-distance business. We have lines extending east and west through our state, from Owensboro to Paducah, the whole length of the state, and with the Louisville company, the Kentucky long-distance company, and the new company at Indianapolis, we are enabled to reach most of the states of Indiana and Ohio, and into the central part of these states. Our outlook in that particular is very promising, and much depends upon this. We hope that we shall be able to say one year from now that Kentucky can telephone into Chicago.

The Secretary: Mr. Clement is in the room now. We would like to hear something about the District of Columbia.

E. E. Clement (Washington): The District of Columbia, in which I presume every one from every part of the country is interested, is in a very peculiar condition. When the Bell patents expired and the Independent movement started, there were quite a number of gentlemen, I think most of them in Chicago and vicinity, and most of them manufacturers, who commenced an attack which was repeated at intervals for several years, but owing to our form of government and the conditions there it has been very difficult to make any impression up to this time. We have not as yet succeeded in getting a franchise for the right to build a competing system. Washington has been the most abused city in view of all its other advantages—abused, I mean, by the Bell people—that I know of.

Until within the last year or two we actually had grounded circuits in regular use there, in the city which has the best electric railway service in the country. We have still a lot of old Blake transmitters stuck around under old contracts here and there; but within the last two years—the last six months, the last one—there have been built four new exchanges by the Chesapeake & Potomac, which is the Bell licensee, with common battery, which give good service. They are pushing the private branch exchange end of the business. They have got branch exchanges through the departments, and they make a very strong argument against anyone who wants to come in as a private concern for the purpose of building a new system. Of course, we have no local councils there; we have no local body which represents us as the councils do in the states. We depend upon committees of Congress. We have three commissioners appointed by the President, and we must make our attacks through Congress. That is one way in which we can succeed in getting a company in there, and eventually bringing our long-distance lines into the District of Columbia, which I think is extremely important, getting our outside exchanges in direct touch with the government. In the first place the government is spending $100,000 to $150,000 a year with the Chesapeake & Potomac Company there. In the second place the service to the government is unsatisfactory; and in the third place, just so long as they can maintain their grip on the government, of course it gives them an additional argument against anything we can urge. We have a plan which we are working on. I don't know that I should go into details at this time, but it is a plan which involves the co-operation, certainly at no distant day, of all the companies which would be benefited by long-distance transmission to Washington, and I think that certainly would include a great many companies, pretty

nearly all of them, in fact. That is being handled and will be forwarded by representative men in the movement, and I think no step has been taken which did not contemplate the ultimate backing of the entire enterprise, if I may call it so, perhaps of the association and perhaps of the companies represented by the association. We hope possibly to get results this next year.

There have been four different parties represented before Congress now for two years. To a certain extent they have antagonized each other, and they have been unfortunate in another thing. Washington, while it is not strictly a southern city, is peculiar in that it is more southern than most of the more southern cities. We have the old element there—the old Washington families—which are very conservative. They are old-fashioned and they are tenacious of their own standing, of their own rights. This element in our community has hitherto controlled the business policy and the local government; that is to say, concessions were made to that element in large appointments, etc. The newspapers are largely owned by this element. Outside capital has come in recently. Our gas company has passed out of the control of the local people into the hands of outsiders. Our electric railway is now controlled by outsiders, and so forth. That may be well for the community; I think likely it is. But in attempting to make headway, the people who have organized there in our movement unfortunately have chosen business men who, while they are known, are not of that older class in the community, and who represented merely the spirit of making money for the majority of the people. That was a drawback, but I think it can be remedied. The movement is ready to take strong steps, and I think will show a very healthy condition this winter when Congress gets together.

The secretary continued calling the roll of the states, with no response until he came to Michigan.

E. B. Fisher: Mr. President, J. B. Ware, secretary of our state association, was to respond at this time. I am sorry to say Mr. Ware has been ill and has been out of his room only a few minutes; so Michigan will not be properly responded to, for the reason that I am not prepared with statistics to give you. As president of the state association, however, I am able to make a few generalizations. We have in the lower peninsular of Michigan about 70,000 telephones in service in the Independent system. How many there may be in the movement in the upper peninsula I am not advised. There are some, and some very successful and useful companies. Their relations, however, are more with the state of Wisconsin than they are with us at the present time. We hope some time to get across the straits and get to them, and get to northern Wisconsin in that way, also to Minnesota and the Dakotas, but that is a labor of the future.

When the Independent movement began in Michigan the Bell company had in that state 13,000 telephones; that was the sworn report to the auditor of the state, on the first day of July, 1896. Their last report is that they have in the two peninsulas somewhere in the neighborhood of 66,000 telephones, less than the Independents have in the lower peninsula. They control practically the city of Detroit. They have 17,000 telephones in Detroit. Seventeen from sixty-six leaves forty-nine. They claim something like 10,000 in the upper peninsula. So they have less than 40,000 where the Independent companies have 70,000. The Independent field has been quite thoroughly organized. We have had an association and good meetings for several years. We did not adopt the Ohio idea at first with any great avidity, because the number of operating companies was rather limited; but on further consideration decided to do so. We divided the lower portion into six districts. There are districts which had not to exceed half a dozen operating companies. You might say in the district meeting it would be very difficult to get enough people together to be worth while, but our experience with the district movement in Michigan has been so very pleasing and altogether satisfactory that we want now to commend it to all our neighbors, and to urge upon them that they go and do likewise, and do it right off when they get home. Do it now. We have got in these district meetings representatives of rural organizations, little companies of from twenty-five to fifty telephones, who would never come to a state gathering, and yet these companies could become an important element in the system. They make for us all the time. The Bell company in our state is beginning to coquette with these people furiously. They are offering all sorts of inducements. They are doing there as they are in the state of Ohio; they are pretending to be good. You remember the old couplet:

"When the devil was sick,
The devil a monk would be,"

and they have been very sick in Michigan; and we go on with the rest of it and hope they will take it to heart. They have made some progress since our last gathering. They took away from us two important interests, one of them representing an investment of $100,000. They have so abused the communities in character of service since they came into control of the field again that we are very much encouraged to think we shall be able to wrest back the district in the southern part of the state around St. Joseph and Benton Harbor.

We have had in our state, more especially to guard against these insidious efforts on the part of Bell, solicitors such as Neighbor Sapp from Ohio and the neighbors from Iowa have indicated. We have found our organization exceedingly useful in another direction. Three per cent of the gross revenue goes to the state of Michigan, and that is in lieu of taxes. There was a bill before the last legislature; where the movement came from we did not know, but there was a movement there that certainly would have carried had there not been district organizations over the state, and the opportunity to get close to the individual legislator, the member of the house or member of the senate, right in his own home. That measure for increasing the tax of the telephone companies from three per cent of the revenue up to seven or eight would have carried but for the state organization. From our experience there we do insist that the Bell's efforts can be best counteracted and the progress and prosperity of the Independent movement best subserved by a thorough systematic district organization carried through the state into this national organization.

The Secretary: Minnesota.

The Chair: I think Mr. Nate can tell us something about Minnesota.

J. J. Nate: Mr. Moulton is in the city, but I doubt if he is present. Mr. Richardson, the general superintendent of the Twin City Companies, may have a few words to say.

The Secretary: Mr. Richardson, will you let us hear something as to the situation in Minnesota?

Mr. Richardson: Mr. President, I am entirely unprepared to say anything regarding the situation except that we are making progress up there steadily, and we are getting a great deal of encouragement. We are also extending our toll service to all parts of the state and into the adjoining states. We also are getting a great deal of encouragement on that score, and are bringing into line the Independent companies that formerly had no toll service. The situation in general I think Mr. Nate could best explain; he is through the state continually.

Mr. Valentine: Mr. Chairman, Mr. Richardson is a little bit modest. He could tell you more than that, if he would tell you what his company has done in the past two years. I know they built about 2,500 miles of first-class toll lines. They have magnificent exchanges in Minneapolis and St. Paul, and I think they have got the most of the business. He is too modest altogether.

The Secretary: Mississippi.

Mr. Wear: I regret to state that Mississippi has no state organization. We attempted last year to get one together—did get an organization together, in fact—but our people down there have been raised with "niggers," as they call them, and we all get our ideas from "niggers." We are afraid of "boogers." "Niggers" talk about "boogers," and some of them have come in there, and a good many of the operators think we are "boogers." There are two of us here who came up from Mississippi and we shall try to perfect an organization whereby we can continue in business and make arrangements for the next meeting.

The Secretary: Don't go away, Mr. Wear, before we have a heart to heart talk. I am pretty close to you, there in Tennessee. Missouri.

Mr. Hudson: Mr. Chairman, I am from Missouri, and people from Missouri have to be shown. About fifteen or twenty of us have come up here to be shown by this convention. We think we have a pretty fair representation. We have four district associations in the state, and a state association. The state association has not been as active as it should have been during the last two or three years, but at the last meeting we had a good attendance, and it now seems probable that we shall have a good, strong national organization, and with that our state association will receive new life.

I am sorry that we have not any very late data upon which to base accurate estimates or calculations of the number of telephones in the state. The latest official figures we have are those made by the operators to the state board last year. Those statements are in now, just recently sent in for this year. Our statements are always made for the preceding year, so that the data we now have is really two years old. It was made up last June. At that time we had 185 exchanges, and something over 41,000 telephones in organizations—that is, in organized companies. Of course, that does not include anything like all of what we call mutual telephones. Since that time the Home company of Kansas City has completed a magnificent plant there and has installed about 13,000 telephones. There have been a number of smaller exchanges started, and the Independent company in St. Louis has grown very materially during the last two years.

We have made considerable progress in the last two years in the way of toll lines. The Kinlock company has built some of the finest toll lines I have ever seen throughout the center of the state, extending down to the southwest and connecting with the Home company of Kansas City, and all important points in the southwest. The Home company of Kansas City has built into the northwest very largely. The Buffum Telephone Company, with headquarters in Louisiana, has a large toll line system connecting up the central and northeast part of Missouri. The Missouri company, with headquarters at Carrollton has built extensively. Around Joplin the Home company of that territory has built a number of lines connecting points in that vicinity. There has been a heavy copper circuit built from the system of the University to the state capital, Jefferson City, which insures a pretty thorough connection throughout the state. Of course, there are some points that we have not reached yet.

In addition to these improvements and extensions, one very gratifying feature that I am glad to mention is that financial conditions have improved very materially. There are a number of institutions in the state now and individuals that are considering telephone securities, and we find that it is very much easier to interest people with money to invest in the telephone business or securities than it has been in the past.

The Secretary: Montana. (No response.) Nebraska.

Mr. Woods (Lincoln): Our secretary has asked me to say a few words. We haven't anything specially prepared. Nebraska is getting to be a fairly strong Independent telephone state. We have plants either established or in course of construction in every town of any considerable size in the state, outside of the city of Omaha, and we hope soon to see a plant built in Omaha. Some people have attempted to get a franchise there, but there has not been any organized effort made in good faith by people with money back of them to build a plant, and if any of you gentlemen hear of anyone who has $1,500,000 to invest in the telephone business, if he will come to Omaha the Independents of the state of Nebraska—and I think I may safely say the Independents of western Iowa—will join in helping him to get a franchise in Omaha. We have more telephones today in operation in Nebraska than the Bell company has, and I think the Bell company of Nebraska is the strongest Bell company of its size in the United States, at least we have been so advised; and perhaps because of the competition that they have given us we believe it is true.

In our country, of course, we were handicapped by lack of good toll service, and a year or two ago we started to build some good lines, and we are now in shape to offer the Independents a fairly good toll service, with connections to all towns excepting Omaha. Last winter while the legislature was in session this situation came up against us. We would start out to build a toll line along the main line of some road, and the Bell company would go ahead of us and try to buy the ground, or take the ground from under our feet, by inducing the Independent companies to turn traitor and go into their camp. They did more in Nebraska than they did in Iowa, and I think he said they did more in Iowa than they did in Ohio. The fourth largest town in the state of Nebraska—I might just as well mention names, the town of Fremont—while the legislature was in session, got into trouble. The Home people there have got a thousand telephones in their plant, opposed to the Bell company with about a thousand telephones. The rates had been cut, they were not making money, and they got a little tired. About this time the Bell company came to them with this proposition: "If you will take our plant in Fremont, we will turn it over to you and take stock in payment for it at a fair price. We will enter into contract with you not to do any telephone business in the county in which your town is situated. We will give you an absolute monopoly of the business in that county. You are a local company; you are a strong company; you are strong enough to keep out other Independent competition, and all we ask of you is to give us a toll line contract." But they insisted on getting a contract that would prevent other Independents from connecting over it. They go to towns in the state and they absolutely offer to turn their plants over at a great deal less than cost provided they will connect up with their toll lines. They are doing it all over the state. I think Lincoln is the only town they are not willing to do that in. The amount invested there is a half million, and we have about a half million, and neither could buy out the other.

We met the situation in Fremont this way: We had to go up there and buy it out. We had to go down in our pockets and buy the stock. But as soon as I got off the train from Fremont I was met by a committee from the town of Fairbury, where they were trying to do the same thing. In the town of Fairbury the Independents had absolutely whipped them out. The Bell went down there, put in a central energy plant and then offered to turn it over to the Independent company if they would turn the toll line over to them. We had to put money into Fairbury. The legislature was in session, so we devised this remedy—attempted it, but did not carry it through. We called the state association together, and we have quite a healthy association in the state; have some 18,000 telephones operated by members of the association, and some of us recommended that the state association urge the passage of a law through the legislature that in towns where one company

had a monopoly of the telephone business it must connect up with all toll lines that came to the town. Of course, we argued that telephone companies are public service corporations, and where a public service corporation has a monopoly of the business within the limits of any town it is its duty to connect up and do all the business in that line in that town. I don't know but I am branching out here and taking a little too much time. If I am, Mr. President, I hope you will call me down.

The Chair: Get through as soon as you can, but finish your story. It is interesting.

Mr. Woods: We introduced a bill of that kind. We took the matter up with the Independents throughout the United States, and a great many of them opposed it. They said it was a bad thing, that we would never get service from the Bell companies anyway; but we said that we did not want to get service from the Bell companies; we wanted to get service from the Independent companies that they had connected up under exclusive contracts. We carried that bill through the house, and in the senate we were defeated by one vote. The Bell company spent something like $30,000 to beat it; evidently they didn't think it was a very good law. We expect to get into the fight again. Probably it was not the right thing to bring up for discussion, but I would like to hear from the members of this convention what their ideas are on that question, whether a law which compels a company which has a monopoly of public service business in one town to do all the business would be a good thing. If these towns connected up with them—towns which they are getting away from us by fair means or foul—and are compelled to connect their long-distance toll lines, they do not gain very much by getting them away. I believe that it is a good thing.

The Chair: Confine your addresses, please, to five minutes.

The secretary continued calling the roll of states, receiving no response until the state of New York was reached.

Mr. Ferris (Utica): We in New York state have a state association. We had a convention last week with 150 men there. We represented 125,000 stations and toll lines amounting to 5,000 miles, exclusive, of course, of New York city, and practically north of the line drawn across the southern peninsula. The fight has been pretty hot for two or three years. We have had the same experience as our friend had with the Bell company. They have bought a lot of plants—subsidized some of them—and in just one minute I will try to give the solution we arrived at. Last summer the Bell company bought one at $120,000 spot cash that inventoried $27,000. That is the temptation held out, and, of course, men being mortal, they would get all except ours, of course. We organized a holding company and took over these plants. We organized our plants in April. Our stock sells at 58, and it was a bonus with the bonds when we issued it.

The weakest point, I should have said, up state, is Syracuse, and has always been—poor construction and that sort of thing. Within the last six weeks arrangements have been made whereby the plant is to be purchased. I might say in passing that the underwriting was offered to the public on the 12th day of June, a week ago last Monday, letters sent out at noon. It lasted up to yesterday, and my information is that the million dollars required was oversubscribed. That pretty nearly cleans up New York state to New York city. That, of course, is a peculiar proposition. What we are going to do with New York city I would not want to tell you because I do not know, but I will state this, and make the statement advisedly—by a year from to-day there will be something doing in New York city, and two years from to-day there will be Independent telephones enough in New York city to add to New York state, so that New York state can take her place as the Empire state, and we will have more Independent telephones than any other state in the Union. I think that pretty nearly covers the situation with us.

The toll lines are being built very rapidly. The great difficulty we are having down there is with the Bell people; they will do anything to get the telephones. Of course they give away telephones—that is old; sublicensing is also old. Last year they began buying out our friends around us. We sat down on that. If any of you have been up against it and know what to do, let me know. Among some plants that we secured, or my associates did, was one in which they had the rates too low. We raised them—that is, we didn't raise them, but we put them on four-party lines. What did the Bell people do but go in on a municipal ownership scheme, to put it in and connect with them if they would build a municipal ownership plant. Consolidation is the sign of the times with us, and if we do not get down to New York pretty quick our next door neighbor in the Independent field will build right in. The men we have to watch is the Independent man, because he builds right into your town, and you don't get toll receipts. Even the gentlemen with me are drawing arbitrary distinction because I want to put a toll line out in my immediate neighborhood.

The Secretary: North Carolina. (No response.) North Dakota. (No response.) Ohio.

Mr. Beam: Ten years ago there were less than 50,000 telephones in service in the great state of Ohio. These were operatd by the Central Union Telephone Company. It will be ten years ago the first of August this year that the first Independent telephone exchanges commenced to give service. The development has gone forward very rapidly, and on the 30th day of March a report that was prepared for our state association showed 336 incorporated companies operating in the state of Ohio. They are operating 668 exchanges, 196,937 telephones, 1,432 toll stations, and there are 17,029 stockholders. We sent out blank statements to get comparative statements between the Independents and the Bell, and found that the Central Union is operating in the same territory 64,318 telephones, 159 exchanges, 743 toll stations, and there were very few stockholders. Of course, the 17,000 stockholders that we have scattered throughout the state are very important to keep us together.

I am sorry that our friend from Missouri did not read his paper and have it discussed, because if there is anything that this convention ought to do it is to impress upon the delegates here to go back to their states and form strong state associations. I think that is the only thing that is going to keep us together. To illustrate that, of course you all know something about the Ohio situation and the Ohio association. We have had the state divided into nine districts and we had meetings in those districts before we had our state convention. At the state convention we had over 220 delegates present and over 200 stockholders. We had only a one day's session, but it was a very busy session. It was so busy that when a photographer sent a note into the chairman requesting five minutes of their time to take their pictures, and the chairman put it to a vote whether they should take up the time or keep on with the business, the vote was unanimous that they would not give five minutes to have their pictures taken.

The Secretary: Oregon. (No response.) Pennsylvania.

Mr. West: Mr. Chairman, in the absence of Senator Klein I have been asked by the secretary of our state association to say a few words regarding the situation in Pennsylvania. September 27, 1904, we organized our first state association. We now have of companies, as members, 69. We have 93 telephone companies in the state of Pennsylvania, of which 82 are Independent, and 11 Bell. In October, 1904, we had 7,404 Independent telephones; the 1st of June, 1905, 9,574. Unlike the New York system, we have plenty of territory, but not enough money. We have

one of the richest cities in the country, Wilkesbarre, and some $2,000,000 of its money went to float the Automatic company in Chicago—money we could have used very well in our territory. I understand the Keystone company has about 24,000 telephones in use in Philadelphia, and the Bell company claim about 40,000. We have a traffic association in Philadelphia, of which nearly all the Independent companies are members, which has been very satisfactory to us in clearing our toll business, but we do want a standard form of agreement for the division of tolls, and if any state association has a good form along those lines, Mr. Bradley, our secretary, would be very glad to have a copy of it.

We have plenty of contracts, but we have not enough money to take care of them. The company I represent has on its books several thousand in contracts to-day waiting installation, and I think nearly every other Independent telephone company in the state is in the same position. Our toll lines are increasing very rapidly. We now have service from Philadelphia to Buffalo. Soon we will be through to Cleveland and practically all New York state will be covered. Our toll receipts are increasing very rapidly. One of our companies has increased its receipts over 100 per cent. If we can only keep that up we will be in a position to declare dividends before very long.

The Secretary: We have with us this afternoon, I understand, a gentleman from the home of the American Telephone & Telegraph Company, a gentleman of whom we have all heard, and a few of us have seen. We would like to hear from Vinton A. Sears of Boston, Massachusetts.

Mr. Newell: Before we hear Mr. Sears, or before you gentlemen do, I want to withdraw. I have to take a train, but before going I want to have an opportunity to make an explanation. My name is Newell, from St. Joseph, Missouri. I am one of the fellows with moss on our backs, and we do not care how much moss we have on our backs, provided our brains keep clear. It has just come to me—and I don't want you to misunderstand me—through a gentleman who handed me a St. Joe paper that came out Tuesday night, I think, stating that Mr. Newell (which certainly is my son) had declared to a body of men, the Business Men's Club of St. Joseph, that we had been offered sums of money for our plant, and that in the event that the people of St. Joe did not stand by us and rally to our support we would sell that plant—something to that effect—and it seems that the headlines of the paper would indicate that he had been understood as meaning that perhaps we would sell to the Bell people. I think there are men in this body from Missouri and other places that know me, and if they do know me—and I think they do from the fact that I have stood out and fought the Bell almost single-handed, when I had all sorts of assaults from the Bell people, who even came into our own ranks, into our company, and used men that were my partners in business as tools to try to ruin the business; but I stood firm, and God knows the Bell people couldn't buy the company for a million dollars. I happen to be owner of more than two-thirds of the stock of that company, and without patting myself on the back, the fact is that we have succeeded thus far, and we are now making an aggressive canvass for new business; we are prepared to handle it, and I want to say this, if it hadn't been for me the plant would have gone to the Bell people long ago. And now, at this late date I want to say, gentlemen, not only one million couldn't buy it, but two millions.

The Chair: We wish to thank you, Mr. Newell, for those remarks. That is the kind of people we like to have in the Independent ranks.

The Secretary: I am sorry to announce that Mr. Sears is not well enough to appear before us this afternoon to the extent of giving us a talk, and he asks therefore to be excused. I will point out the gentleman, though with characteristic modesty he has taken a seat in the back of the room.

The Chair: Stand up, Mr. Sears, so the gentlemen will know you.

Mr. Sears arose and the convention applauded.

The Chair: Almost everyone has read Mr. Sears' excellent book, that he has gotten up in the last three years, with a great deal of interest. I know they have been gotten up and sold just the same as the comic magazines, only for a different purpose. There is a great demand for it.

The Secretary: Rhode Island. (No response.) South Dakota.

L. F. Lundy: South Dakota has had a state organization for two years. It is not large, but is composed of a body of men who are trying to work the Independent field and work it right. There have been a good many things they have run up against, but I think in the long run they will succeed. They have one district organization composed of eight Independent companies, and they are growing as fast as they can away out west, which is very rapidly. In riding along the railroads you can see poles running out from every station, and before long South Dakota will show you that it has a good lot of Independent companies and Independent lines.

The Secretary: Tennessee. I appear as the delegate of the National Home Telephone Company to the convention of the National-Interstate. We occupy the peculiar position of not being in operation even, nor in the process of construction, but we are trying to get a franchise. Associated with me in the city of Nashville is Luke Lea, who is not only the secretary of the company, but our attorney. He comes to us to-day more especially as the representative of the Chamber of Commerce of the city of Nashville. He has something to say to you as their emissary, and while talking on that subject will include in his remarks such statements as he may care to make regarding the development in the state of Tennessee, with which I can assure you he is fully familiar. I take great pleasure, gentlemen, in introducing Mr. Lea.

Mr. Lea: It seems hardly right for me, a layman in telephone operations, to appear before practical operators. I stand here not as a telephone man, but merely as a testimonial of the city of Nashville to two Independent telephone operators, Messrs. Barber and Tetu. They have made such a favorable impression that the Chamber of Commerce of Nashville wants to know more Independent telephone operators, and has requested me to come here and extend to you a hearty invitation to hold your next convention there. We hope very much, from the standpoint of the citizens of Nashville that your convention will meet there, and as a representative of the Chamber of Commerce I can tell you that you will receive a most hearty welcome. It would be unfair if I told you that the Chamber of Commerce had taken sides in the fight between the Bell telephone, as represented by the Cumberland Telephone Company, and the Independent movement, because it has not; but irrespective of that I think it recognizes a good thing when it sees it, and is very anxious to have this convention there.

My work as a representative of the Chamber of Commerce being done, it gives me a great deal of pleasure to tell you that no one thing would contribute so much to the fight in Nashville as to have the convention there. I say that as a man who is heartily in sympathy with the Independent movement. I believe continued Bell supremacy in the south means stagnation. Their methods have been varied. They have fought, as I have heard gentlemen say this afternoon, by those methods. They have a peculiar method in the south of fighting with a dummy. As soon as an Independent telephone company is organized the southern Bell organizes a dummy. It has heretofore been successful in defeating the advance of Independent telephony. The fight has been a very hard, bitter one, and the need of your assistance is very great. I trust you gen-

tlemen will find it in your power to give it to us. Until recent years the Bell has been absolutely supreme. Its licensees, the Southern Bell and the Cumberland, have successfully fought opposition. There are nothing like the number of telephones in the south that there should be, and that is because the rates of the Cumberland and Southern Bell have been so high that it has been impossible for the poor man, the tradesman in the small town, to have a telephone. There have been a great many panaceas offered; among them public ownership and public regulation. There is no middle ground between competition and public ownership. Public regulation means making a corrupt law. Public ownership we are not prepared for; so the only remedy is competition. It is therefore with peculiar interest that we watch the fight made by Mr. Barber and his associate, and we trust very much, indeed, that you will see fit to assist us in the fight.

The Secretary: Texas.

A Member: We have with us Mr. Dunaway of Paris, Texas, who is president of the state organization. I take pleasure in calling on him.

E. W. Dunaway: Mr. President, it seems that I am like a lone star. I am all alone. When I try to delegate some of my duties to some of my colleagues they turn them back to me with interest. We organized in January of this year an Independent Telephone Association. Previous to that there had been an Independent Telephone Association of the state, combined with the territory. It fell through. We met again on the 10th day of May and completed our organization by making application to this association to become a member of it. We had a very enthusiastic meeting at both times. The first time we had an attendance of about thirty. The last time our membership was 102. We are very enthusiastic, but being of the class that the gentleman spoke of a little while ago, being associated with "niggers" and "poor white trash" down there, we are a little dilatory about getting up statistics. They promised to send in to the secretary statistics showing the number of telephones that they operate, and the financial condition of each plant, but the secretary informed me the other day that he had not got them completely compiled.

Our fight down in Texas has been one of varied points and conditions. We have met all the propositions that have been spoken of here to-day, made by the Bell, and we have a man, the new vice-president of the Southwestern Telephone Company, who is about as clever an individual as any one man has to go up against, and I guess some of you have gone up against him. That is Farnsworth. He is a magnetic gentleman. If he cannot get patrons any other way he will get out to a country dance and lead the cotillion, chucking the young ladies under the chin, and patting the boys on the head. But I have started out to be the same jollier that Mr. Farnsworth is, and am fighting on the same ground with him. Over in Dallas during our convention I invited Mr. Farnsworth to come over and see a body of good looking men. He came as far as the bar. We sent out our representative to bring him in, and he invited us around the corner to see his telephone exchange.

We have gone to work down there upon a purely business principle. We promise people nothing but what we can give them. We have opened the door to a franchise in Dallas after a two years' fight. We have secured a franchise unanimously from the council. When we began we could get but one man to stand up for us at all, or even listen to us, but we now have a long-distance franchise in Dallas. There will be provided about 300 toll stations for the business people of Dallas. When we went over there we made the point that a telephone plant is a good thing; that Boston ought not to have all the glory of it. They already own their electric light franchise and their railroad franchise and their telephone franchise—all of the stuff went over to Boston—so that they would better take hold of this and make something of it themselves. We got the business men interested, and now they are building there. It is the entering wedge, and Mr. Farnsworth comes and says, "Good, boy! Good boy! you have done it at last, and I congratulate you." I said, "Mr. Farnsworth, there is plenty of room for good men. I hope to see you in the Independent field before two more years." Thank you, gentlemen.

The secretary continued reading the roll without response until the state of West Virginia was called.

Mr. Hutchins (Huntington): West Virginia, while not new in the telephone business, was not organized into an association until last month. A meeting had been arranged for at Parkersburg with some twelve companies represented, with 13,000 telephones operating over 676 miles of toll line in the southwestern part of the state in which is located the capitol. The Independent movement is in a healthy condition. In Charleston—that is the capital, of course—we maintain a safe lead, while in Huntington, my own town, I can show a fraction of over two telephones to the Bell's one, despite their underhanded methods, misrepresentations, and temporary free service which they are offering as a bait. Mr. Barnes, of the northern part of the state, who is president of the state association, and Mr. Davis of Parkersburg, near the center of the western line, have compiled some statistics that we shall be glad to listen to right here. We recognize the truth of the old adage about there being strength in union, and the primary object of our mutual meetings was to get the various companies in line and connected, and so present a solid front to our common enemy, the Bell. The National Association may count on us to render a creditable showing.

Mr. Davis (Parkersburg): On behalf of the state association, I desire to make a report as to the progress of the West Virginia Independent Telephone Association since its formation on May 10, 1905. First, however, I desire to correct our delegate who says that the state was not organized until May. The state is one of the oldest in the business. Our delegates have grown old, some of them, and gray-headed in the profession, while others have got into it early in life and have been so constantly in it that they have not had time to grow up or to get old. The state has been organized since 1901, the organization being known in the northern part of the state as the Western Central Telephone Association. This association dissolved a little over a year ago, and was not organized as a state association until 1905.

I desire to report on behalf of the state that the association now comprises twenty companies, representing 25,492 telephones, and operating 3,007 miles of toll lines. The same territory is covered by the Central District and Printing Telephone Company on the north, and the Southern Bell, operating in the southern part of the state, which companies represent 7,724 telephones and 5,275 miles of toll line. Thus we have 17,768 more telephones for the same territory than the Bell companies, while they have more toll lines by 2,078 miles. I can say that West Virginia is taking care of the public, taking care of all demands made upon us for telephone service, and at the same time we are taking care of the Bell company. They do not need any introduction to the Independents of West Virginia. I want to add that we have 64 Independent companies operating in the state, comprising commercial companies, and the Farmers' Mutual Company. We hope before the next meeting to have the state thoroughly organized, and to have every Independent telephone company in the state a member of the association. Gentlemen, you can expect West Virginia to take care of the Independent situation in that state.

The Chair: Good.

The Secretary: Wisconsin.

Mr. Valentine: Mr. Chairman, it is the same old story

in Wisconsin. Every Independent exchange that I know anything about is growing rapidly. That is such an old story that it is hardly worth talking about. We have outside of the city of Milwaukee, which has no Independent exchange, about five times as many telephones as the Bell company. We are in hopes that it won't be long before someone will take hold of Milwaukee and build an exchange there, for it certainly is a fine proposition. We have been working along another line of late in our fight against the Bell company. Like our friend from Nebraska, we were looking for some legislation. It occurred to us that we ought to be able to pass a law to prevent discrimination in telephone rates, and inasmuch as the telephone company gets its right to exist from the people, we could see no reason why they should charge the people in one town three or four dollars per telephone, and the people of another town from nothing to fifty cents or a dollar. So two years ago we drafted a law along those lines, dividing the state into sections, according to population, and the bill provides that any telephone company operating two or more exchanges shall charge the same rate for the same class of service in all cities and towns of the same class. Well, we had a hot fight, you can depend upon it. We carried the bill through the house two years ago, and we lost it in the senate on the last vote, they buying one of our senators by a trade. This winter we introduced the same bill and they adopted different tactics. It was referred to the judiciary committee, all lawyers, and they adopted the tactics of retaining some of these lawyers at their home towns, as near as we could get at it. It is an easy way to bribe a man, you know; if he is a lawyer, you retain him. The result was that two lawyers on the committee who supported our bill two years before became wise, and this time they were against us. The bill was reported to the house by a vote of seven to four for indefinite postponement, but we went upon the floor and carried it through by a vote of 58 to 27, so you can see the assembly of Wisconsin did not have much confidence in its judiciary committee. The bill then went to the senate and we got a favorable report on it there, and the same old fight. They had eight or ten lobbyists there all the time, high-priced lawyers and all that sort of thing. Mr. Harper of Madison and I were there alone most of the time. We had lots of business; we carried it along through the third reading and it came to a final vote. At the final vote one senator, who had been with us, voted against us. They had made the same old trade. We were prepared somewhat for that fellow, so we brought pressure to bear on him from home—the state administration, and our friends—and informed him that we would kill his bill deader than a smelt if he didn't move a reconsideration. So the next day the senator had obtained light on the subject, and he moved a reconsideration, and we passed the bill by a majority of one. The night of the first vote the president of the company was there, and he invited his cohorts over into a saloon, and they had a high old time with champagne and so on at the Bell's expense. The next night they drank seltzer.

We feel that that bill is going to do a great deal for the Independent telephone movement, and we want the other states to take hold of it. The bill was submitted to the best lawyers in the state. We let it go to the attorney-general for his opinion as to its constitutionality. That was the fight they made this year—that the bill was unconstitutional. We had a strong opinion from him that it was constitutional, and we believe that it will stand in the Supreme court. Of course it is our intention to take it there as soon as we can. The penalty is pretty stiff for a telephone company that does not live up to it. We don't care, though, whether they charge 50 cents for a telephone in one town so long as they charge 50 cents in the other town where they have no competition. The bill does not make rates, but simply says they must charge the same rates to all of the people of the same class. I am going to send a copy of it to the several telephone journals so that you can all see it. I wish you would take hold of it the next time your legislature meets. It certainly is a just measure. There is no reason why we should not have that protection; and if you go after them right sharp and they don't spend too much money, of course—say $20,000, as they did with us—you ought to be able to carry it through.

Mr. Goodnaught (Mississippi): There is just one point where Mississippi comes to the front, and that is that it has a law of this kind. We have in our state a law almost similar to this one. The cities are not divided into classes, but when a telephone company has established a subscribers' rate in one town, it must meet that rate or make a similar rate in all other towns of the same population, and after a telephone company has established a rate in a town, and for any reason it desires to make a change in the rate, it must come before the railroad commisison and submit its reasons for that. We are before the railroad commission in all our regulations as to subscribers, and also toll rates, and when we have established them, they must stick until we get permission from the railroad commission to change them. In that way we have a pretty fair chance at the Cumberland people, who are the Bell people in our state.

The Secretary: Wyoming. (No response.) I will just go over the list of states that have not responded, and see if any of the delegates have come in in the meantime.

When Indiana was called:

The Chair: Indiana must be represented. Mr. Beers was here a few minutes ago.

Mr. Beers: Indiana has not been organized under the new plan. They have a state association over there; in fact, they have two. The interests of the state are so divided that the people in the southern part have not a great deal of social interchange with those of the north, and not so much business interchange, and that is why there are two associations. They can be readily worked into this district idea, I think, and all brought into a state association later on. The statistics were thoroughly collected, and I think Mr. Sheerin was fully prepared to give you details upon that subject. I know about them only in a general way, because he had collected them. But there are at least 166,000 telephones against not over 25,000 to 30,000 of the Bell. I am not prepared to give you a comparison between the long-distance lines, but I think I am safe in saying that the mileage of all the long-distance companies in Indiana—the mileage of all the lines that are used for long-distance—is two and a half times that of the Bell.

The Secretary: The Dominion of Canada. Gentlemen, we have a representative of the Canadian government with us to-day, from whom we would like to hear concerning the situation as far as he is able to give it and willing to give it in the Dominion of Canada, Mr. Dagger. Is Mr. Dagger in the room? He is out again. I am afraid we will have to pass that.

Cuba. I understand we have a representative from Cuba. Is the gentleman from Cuba in the room? There are said to be some delegates from Japan also, but they do not appear to be in the room at this time, so we will of necessity have to pass them.

The Chair: I just wish to make one remark before closing this subject. The gentlemen who have responded for the states represented, as I understand, have many of them given the full number of telephones, while a large number of others have only given those represented by the state associations. So do not get the figures confused and take it that they have reported every Independent telephone in the state or territory they represent. There is a large territory that is not represented here to-day. Take for instance the northwest, Minnesota, and through that section. There are a large number of telephones that are not represented at all. I am also requested to state that Mr. Farns-

worth, spoken of by the Texas delegate, is Mr. Farnsworth, general manager of the Texas Southwestern Company, and not Mr. Don Farnsworth, Mr. Valentine's friend, of New York.

We have a number of invitations before us for holding the next convention. You know the constitution provides, gentlemen, that the matter of selecting the place to hold the convention is left to the executive committee. It was arranged that way for the reason that there may be a severe fight on some place where it will be very desirable to hold the convention, and that must be decided by the executive committee fully ninety days prior to the time of holding the meeting. We have a number of invitations, and I will ask the secretary to read them. The secretary read invitations from Atlantic City, Detroit, Put-In-Bay and Nashville.

The Chair: In addition to these, gentlemen, the Niagara Falls Chamber of Commerce, through their representative, tendered me an invitation some time ago to visit their city next year, and just before leaving Cleveland the gentleman who has charge of the Convention Bureau of the Chamber of Commerce requested me to extend an invitation to visit Cleveland. I told him it would be left with the executive committee and it would not be necessary to tender a formal invitation, and the matter remains in that shape. I suppose these invitations should be referred to the executive committee.

Mr. Thompson: I move that the matter be left with the executive committee.

The motion was seconded and carried.

The Chair: There are some resolutions on the table to be read.

The following resolutions, offered by E. E. Clement, was then read by the secretary:

WHEREAS, Mr. Samuel G. McMeen of Chicago was requested, among others, to prepare a paper for presentation to this convention on the subject of "Composite Transmission, or The Use of Telephone Lines in Telegraphic Work," a subject of great importance, because the said use affords a means for directly increasing earnings without correspondingly increasing expense; and

WHEREAS, Mr. McMeen at the cost of much valuable time prepared this paper with elaborate charts for oral presentation to the Association this morning, which presentation was unfortunately prevented by lack of time, owing to press of other matters; now, therefore,

Resolved, That the Association appreciates very highly the efforts of Mr. McMeen, and in thanking him regrets its deprivation in not listening to his forceful and always lucid delivery. It recommends all members to read with care the article in the report, and instructs the secretary to record this resolution, communicating a copy thereof to Mr. McMeen.

The resolution was seconded by Mr. Higgins and adopted.

The Chair: I wish to inquire if Mr. McMeen's charts will be published.

Mr. Clement: Yes, sir; the plates have been made and the article in full will appear in all the technical journals. I have another resolution, Mr. President, which I would like to offer on behalf of the press committee. I move you that the thanks of this convention be extended to the Associated Press, the Scripp-McRae Press Association, the City Press Association of this city, and the newspapers of this city, together with the representatives of the technical press affiliated with the telephonic art, for their attention to the news of this convention.

The resolution was seconded and adopted.

The Chair: Is the committee appointed to draft resolutions on Judge Thomas' death ready to report?

Dwight G. Sapp (Ohio): Mr. Chairman and Gentlemen: The commission which I am charged to execute requires me to direct your thoughts from the channel which they have been pursuing into an entirely different one; requires me to suggest that in the midst of our activities, and in the pursuit of our schemes and ambition we pause to consider that in the midst of life we are in death. In this chamber within forty-eight hours, through a mysterious dispensation of Providence, we were brought to a realization that all of the plans of men are built upon an unstable foundation and all liable to be in a moment disrupted. We pursue our ends, gentlemen, we indulge our activities, and, if I were pessimistic I might suggest the thought: Is it worth while? A thought of similar import has come down to us through the centuries:

> "Oh, eloquent, just and mighty death;
> Whom thou hast persuadest none else could persuade;
> What thou hast done none other could do;
> Thou hast gathered together all the pride, ambition and far stretched greatness of man, and covered it over with these two narrow words, *'Hic Jacet.'*"

Gentlemen, you will all recall, those of you who were here yesterday, as that lamented member of our association rose, with what spontaneity, with what sincerity and admiration for what he had accomplished, a testimonial to his worth sprang to our lips and was exhibited through the medium of the applause we gave to him. That applause is perhaps the last thing that reached his finite ear, and yet I believe that on the zephyr which bore him to that farther shore from whence no traveler returns, the faint echo reaches and cheers him, and gives him to understand that the character which he exhibited in life has left its impress here, and that that impression will endure. That event properly, gentlemen, leads to the suggestion that this is a fit occasion, and, indeed, the only occasion of sufficient importance that has occurred since the death of the late Judge Thomas, to enable us to testify our admiration as a National Association, and esteem for that man whose life went out, not so dramatically, not so tragically, but as a result of weeks and months of long suffering; but the end when it came to him was met with that admirable courage which characterized the conduct of Judge Thomas during his long identification with our movement.

I could have wished, gentlemen, that this task, which to me has seemed a delicate one, could have been committed to other hands, that the tribute which this committee has charged me to present to you, to the worth of the character of Judge Thomas, could have been delivered by those who were his more familiar associates; and yet I esteem it a privilege to be permitted to drop a sprig of laurel on Judge Thomas' grave. His career is familiar to all of you, the notable events of it, and they probably will be pointed out more in detail by another member of this committee. But I repeat, gentlemen, these events which, tragic as they are, and which are inevitable, and which may come to me standing here, or to any of us, without preparation, far from leading to the thought of pessimism, encourage us, it seems to me, to pursue the line of conduct that our two deceased associates have pursued, so that if either or any of us shall be removed from this scene of activity, we shall have the satisfaction of knowing that we have not lived in vain. The lives of these two men are a refutation of the thought, of the query, that in this mercenary, in this self-seeking, in this material age, arises: Is life worth living? The answer, gentlemen, is in the character and career of Judge Thomas and our lately departed associate. Mr. Chairman, the resolution I have to offer is as follows:

Resolved, That this assembly, representing, as it does, our entire country, deeply feels the loss sustained by the Independent telephone interests, in the death of Judge J. M. Thomas;

Resolved Further, That this occasion and this assembly, national in its character and scope, afford a fit and proper medium through which to perpetuate our regard and esteem for the deceased, and to transmit to his widow and children in permanent form evidence of the existence of these sentiments;

Resolved Further, That these resolutions be spread upon the minutes of this meeting and that a copy thereof be forwarded by the secretary to the widow of the deceased.

DWIGHT B. SAPP, Chicago.
E. B. FISHER, Michigan.
F. L. BEAM, Ohio.
GEORGE W. BEERS, Indiana.
BERT G. HUBBELL, New York.

I respectfully move the adoption of the resolutions.

The motion was seconded and carried unanimously.

The Chair: The next will be the report of the committee on rules and regulations. Is that committee ready to report?

C. E. Tarte (Michigan): Yes, sir.

Mr. Tarte then read the following report:

Mr. President and Gentlemen of the Convention: Your Committee on Standard Operating Rules and Regulations beg to submit the following: In attempting to compile these rules, we have deemed it advisable to consider a large exchange with a complete organization, with the suggestion that small exchanges, having only a chief operator, or with possibly a combined chief operator and toll operator, will be able to use these suggestions in compiling a different set of rules that will be applicable to their different conditions. While these rules are drafted to cover a common battery exchange with lamp supervision, they will nevertheless, with few changes, be applicable to a magneto system having no supervision.

This committee suggests that a standing committee of, say, possibly three should be appointed, and that this committee be authorized and instructed to call upon a great number of the operating companies, both large and small, for copies of their operating rules, both local and long-distance, so that changes may be made from time to time as they suggest themselves to the committee.

Now, gentlemen, I have here enough rules to take up an hour of the time to read them. Of course that is out of the question at present, and I would like authority to present these rules without reading to the convention for adoption.

The Chair: What is your pleasure?

It was moved, seconded and carried that the association accept the rules and order them published.

The Chair: Is the committee that was to meet the manufacturers ready to report?

Mr. Bromley: Owing to the fact that there are a number of things to be gone into, it was suggested that the Chair appoint a permanent committee with a view to taking this matter up at a later date with the manufacturers, and I will offer a motion, if that be proper, to that effect.

Mr. Valentine: I move that the report be received and the committee discharged.

The motion was seconded and carried.

Mr. Tarte: The recommendation of the committee on operating rules and regulations asked for the appointment of a committee of three—I think it is quite important—a permanent committee. I move that a permanent committee be appointed by the Chair as a standing committee on rules and regulations.

The motion was seconded and carried.

Mr. Bromley: I will make a motion now that the Chair appoint a permanent committee to meet with the manufacturers.

Mr. Fisher: I will support that motion.

The Chair: Three or five?

Mr. Bromley: That has been left to the Chair.

The motion was put and carried.

The Chair: As to those committees, the Chair would like a little time in which to appoint them, and an opportunity to consult with the executive council after they are appointed, and other officers of the association. I think those are very important committees, and they ought to be selected with more care than I can give them. There is one matter that might have been taken up at the roll call, had I thought of it, and that is with reference to the official board. Our constitution provides for a member of the advisory board from each state. Are the states ready to report on that? I think it will be best to call the roll of states again, and have each state name the man as called, and those that are not here to name them, or have not agreed upon them, can send the names in to the secretary's office.

The secretary proceeded to call the roll of states, receiving no response until the state of Indiana was reached.

Mr. Bromley: There is no state association in Indiana—or there are two of them—but it seems to be the consensus of opinion that George W. Beers should represent us on the committee. We should be pleased to offer his name for that purpose.

The Chair: If there is no objection from other members, Indiana will be represented by Mr. Beers.

The Secretary: Iowa.

Mr. Holdoegel: Iowa desires to present the name of S. S. Lichty.

The secretary continued calling the roll until the state of Michigan was reached.

Mr. Ware: Hon. E. B. Fisher, president of our association, has been selected.

The Secretary: Minnesota. (No response.) Mississippi. (No response.) Missouri.

Mr. Hudson: Missouri has not had any formal meeting, but the members are all here in the room, and the choice seems to be that Theodore Gary shall be the representative of Missouri on that committee.

The Secretary: Montana. (No response.)

The secretary continued calling the roll, and the following names were announced:

For Nebraska, T. H. Pollock.

For Ohio, Frank T. Beam.

For West Virginia, J. Walter Barnes.

The Chair: Will you forward the names for this board, gentlemen, when the nominations are made?

Mr. Bromley (Indiana): On account of a misunderstanding, I ask to withdraw Mr. Beer's name from the advisory board.

Mr. Valentine: I move that the names of the persons just nominated from the states be confirmed by this convention, and that liberty be given to the representatives of the states to add such names as may hereafter be sent in to the committee.

The motion was seconded by Mr. Bromley, and carried.

The Chair: The next order of business to come up will be the report of the committee on advertising. They wanted further time, and I have given them all the time I could. Just prior to this, it occurs to me that some of the gentlemen were having trouble in finding the representatives of the Pennsylvania railroad this morning. I understand they are in the lobby now, and will be there, so that if anyone wants to see them he can do so between now and 6 o'clock. We will now hear from the committee on advertising.

Mr. Hudson: After going over the matter pretty thoroughly and taking these signs out in the daylight, the majority of the committee concluded to adhere to the original report. They recognized the fact that the blue shield is a little more distinct. If any objection could be offered to it it would be that it is a little too similar to the sign of the opposition. While it is a little more distinct, we do not think it is more attractive. Furthermore, the national colors have an attraction about them that would be hard to find in any other combination. The colors are inspiring and enthusing, and while the sign is not quite so distinct as the blue shield, it is probably fully as attractive. As for the letters, it was designed to select an emblem that everybody would recognize without the wording. For instance, the Knight Templars' emblem has no letters on it at all, and yet everybody knows what it represents. Another thing that tended to confirm our opinion that we had decided right in the first place was that the manufacturer who makes all of these signs happened to be in the room and we consulted together about it, and he said that he had sent out a large number of advertisements, and that he had ten orders for the national shield where he had one for any other, and that it would be very much the more popular of the two emblems. I believe that is all I care to say about it. The committee was not very particular about just which one was adopted, but they thought there was more sentiment and more popularity in the red, white and blue shield than there would be in the other.

Mr. Bundy: Mr. Chairman, I happen to have had a little experience with a manufacturer of signs recently, and owing to his seeming inability to understand what I wanted, he almost foisted, or he did foist, the red, white and blue sign upon us. He did not seem to know that there was any such thing as a blue and white shield, and I had hard work to try to make him understand. That is probably the reason why he has had that preference shown by the different people. Another thing, we have just recently been having some electric light signs made, and we have used the blue and white shield because the painters told us that the blue and red and white could not be put in the glass and shown with electric light behind it, and show reading properly as it is shown on that sign there, "Local and Long-Distance." That is the objection that was raised to that, and we had to use the blue and white alone.

Mr. Overly: I wish to state for the gentleman's information that we have about twenty of those red, white and blue signs in Ohio. If he wants to see a pretty sign he can go over there.

Mr. Bundy: I got the idea from seeing one of the lamps of the United States Telephone Company. It is very pretty, but I could not read "Local and Long-Distance" on it.

Mr. Eberhardt: As a minority member of the committee, I think the matter has been discussed enough, and you have the sign before you, and all ought to be competent to vote on it; but in order to have the matter on record and to get it closed up, I beg leave to submit a minority report, recommending the adoption of a sign exactly as used by the state association of Michigan, and we respectfully ask you to adopt it.

Mr. Dunaway: There have been at least five or six states that have adopted that sign. We cannot change our action until the next meeting of the association. That was one thing. The blue bell represents the name of the company. We know when we look at the bell it means the Bell company or the patentee, the Bell system. When we look at the red, white and blue we know that that represents independence. It is not necessary for us to say that it is Independent. It is already there. That is as near the American flag as the country will allow us to put on any sign, and we want an emblem of union. As the chairman stated there have been ten orders to one of the others for that sign. Now the association is itself to blame for the adoption of this sign. It has been used on our stationary; it has put people in a position where they expect that emblem, and that is one reason why the committee adhered to their former action upon the sign question.

Mr. Cole: I move the adoption of the report of the committee, that the majority report be adopted.

The motion was seconded.

Mr. Ferris: Mr. President, do I understand that there is a call by states?

The Chair: There has been no action taken on that.

Mr. Ferris: There might be some difference.

A Member: I suggest that we take the vote as it has been taken, and, if we cannot decide, that we take a rising vote.

The Chair: You have heard the motion duly seconded. Are you ready for the question?

Mr. Fisher: Mr. President, I would not like to seem unpatriotic for a minute, or to suggest anything that might be deemed inharmonious, but the minority of the committee having made a recommendation, I feel like suggesting that there is merit in the proposition of the blue shield. There is no element in this convention more devoted to the red, white and blue than the representatives of Michigan; but does that reach the eye so readily at a distance as the other sign? What do we want a sign for? Can we get that sign for as little money? Can we get any proposition involving three colors for as little money, to serve our purpose? It will make a difference of thousands of dollars to the people of the Independent telephone systems of this country to print the red, white and blue as a part of their stationery, envelopes, etc. We are willing to pay something. We are willing to show our patriotism, and it is as glorious a thing as I ever heard that the men from Texas, and the men from Missouri show their patriotism—we know they mean it—but is it as good for our purpose? When it comes to stationery the printing of a little shield with red, white and blue will not make as fine an impression as a blue shield upon white paper. Those facts are worthy of consideration in settling so important a matter. I do not want to seem to be ungracious for a minute, and yet I do not want for a minute, either, to have it understood that we yield the point without discussion or consideration. I really believe that the blue shield on the white background, as it is there, will serve our purpose better than the other sign.

Mr. Tarte: I want to make just one suggestion in all fairness. We know that the president of the association has some ideas on the shield, on the design, at any rate. While I am a strong advocate of the blue shield and white field, I think it should be discussed in fairness, and possibly our president is too modest to state his views. I think he should state his views if he wishes.

The Chair: Before discussing these views, I have a couple of telegrams here that I will ask the secretary to read, as they are important, to the convention.

The secretary then read the following telegrams:

Indianapolis, June 21, 1905.

James B. Hoge.—Funeral of Mr. Sheerin nine o'clock Friday morning. Services and interment Indianapolis.

H. B. Sale.

Funeral nine o'clock Friday morning. Mother is bearing up splendidly. Thomas D. Sheerin.

Mr. Martin: As representing one of the large operating companies in Iowa, I would like to concur with the opinion of the gentleman who has just spoken on this sign. We fellows in Iowa had the first sign, I think, in the association, which was the Maltese cross. Now, we are not narrow enough between the eyes not to give way; but I think, as our friend over there does, that the red in this sign is out of the question with us. I have been talking with a good many of the large operating companies, and while they would use a blue and white shield, I do not think they would use the blue, red and white shield. Our company would not adopt it. We would put in a blue and white, and throw all our other signs away—that is a compromise—but we could not use the red, and I think quite a number of the other large toll line companies feel the same as I do about it—that we are willing to meet you part way, but our company could not adopt red.

Mr. Eberhardt: If the convention adopts the red, white and blue shield, I think the minority will adopt the red, white and blue shield; but we want to go on record as being in favor of the blue and white shield.

Mr. Gary: I am very anxious to see this matter settled, and see it settled right. I do not agree with my friend from Iowa that we would not use whatever is adopted. I do not believe that is the right spirit, and I believe that we ought to get around to a point where we will heartily support the action of the convention. That is my idea. If we cannot get together; if we are going to divide on any one of these reports, let us do something else; but let us get together. Let our action be harmonious. I should very much regret to see any difference on this first attempt to standardize some one form of apparatus, we might say, or something that we use. One of the things that we are organized to do is to standardize operation, apparatus, rules, and so on. The first step that we attempt to accomplish on that line is to adopt the sign. It really ought to be about the smallest part of our work in that line, and ought to be the easiest thing to do. I only want to plead for harmony in this connection. Let whatever we do be on lines that we can all support.

Mr. Higgins: The blue and white looks like the Bell at a distance, but when we see the red we know that it is Independent, even if we cannot see the reading. I think we ought to get away from the Bell. I represent the long-distance of the Pacific coast.

Mr. Stanley: A week ago I put up some of the signs, and the red, white and blue signs attracted attention. I am sure blue and white would not have attracted so much. In walking up almost any street, you will always see black and white or blue and white, because these colors are so nearly universal they do not stand out like the red, white and blue, and where the red, white and blue has been put up it shows so much brighter that I think we get better results out of the three colors. As one of the gentlemen stated a little while ago, it is not the reading on the sign—it is the color; and I think the sign before us, with the red letters in it, helps it out very materially. It shows up much plainer than where there are just two colors; and blue and black look so nearly alike it does not show up anything like as plain as where there is a little red mixed with it. The parties making these signs say it makes no difference in regard to the cost. The cost would be so very little additional, I should not think it would make any very great difference to any one company.

Mr. McPherson: Mr. Chairman, I would like to suggest that the mere first cost or difference in the cost of getting out signs would perhaps not be a very large item; but when you take the matter of three-color printing on all your stationery, I think you will find the greater cost to make a decided difference.

Mr. Dunaway: We have not said anything about printing. We are adopting a sign.

Mr. Hudson: This sign does not require three-color printing. I have had a little experience in printing myself. I made a living at it for about twenty years. Any ordinary printer can print that in red; he simply runs it through, prints the red, prints the blue, and it is done. It is not three impressions, as you get it in your newspapers. You would have a simple black sign in the newspapers. You would not have blue, so that you might just as well have red as blue. So in your newspaper, perhaps, you would simply have the black and white color. On your stationery you would have it like this (indicating), which would probably cost, on a thousand letter-heads, seventy-five cents extra. Then another thing: you can use it like that little sign (indicating). You can use the blue and white sign there on the end, a little sign like that, as a booth sign, with the other sign, with the words above and below.

Calls of "Question!"

The motion was put, and announced by the chair as carried. A standing vote was called for, which resulted in 42 votes in favor of the motion, and 11 against it.

It was moved by Iowa, seconded by Michigan, that the vote be made unanimous. The motion was carried.

The Chair: Now, then, the adoption of the report made by the Committee on Advertising. You will remember there were a number of other things that they spoke of this morning that we did not adopt, and I think the motion to adopt the complete report will now be in order.

Mr. Thompson: Mr. Chairman, I move you the adoption of the complete report of the Committee on Advertising.

The motion was put and carried.

The Chair: Is there any new business to come before the convention?

Mr. Thompson: Mr. Chairman and Gentlemen of the Convention: During our sessions here, and especially during this afternoon, we have frequently spoken of the tactics, and perhaps the disreputable tactics, adopted by our competitors. Now, I move you, Mr. President, that all unfavorable allusions to the tactics of our competitors be stricken from the minutes of this meeting by the Committee on Publication, and I want the attention of the convention for a moment on that question. I think no better thing can be done than that this Association shall not give to the public anything that they regard as disreputable upon the part of their competitors, but let the people of this country understand that we are here in active, earnest competition, meeting them in competition honestly and fairly and fearlessly, and let the report of this convention contain no statement of their disreputable tactics.

Mr. Dunaway: I second the motion, Mr. Chairman.

Mr. Davis: Mr. Chairman, I rise to say a few words against the adoption of this motion. In the first place, at the expense of almost twelve years of fighting the Bell Telephone Company, I have found it to our advantage to hold their disreputable methods up to the public, turn the light on them. Does the gentleman mean to say that the statements made here by the representatives from all over the United States to-day concerning the disreputable methods of the Bell Company are false? That they should be excluded from the records of this convention, that they should not be published broadcast? I am here to say that their disreputable methods should be advertised. I do not mean to say that we should take undue advantage of the Bell Telephone Company, but we have got to use water to put out fire. These methods of the Bell Telephone Company are not known by some of these gentlemen in some parts of the country. They may have the same experiences; they may confront the same conditions; and how are they to know of it unless it is advertised, unless it is known through our journals, and through the proceedings of this convention? I do not believe that we should strike one word from the records of this convention. I believe that every word that has been said on the floor of this hall is true, and I believe every delegate will bear out the words that I say, that they are true. Gentlemen, why do you want to strike them from the record? Do we want to say that we can come up here in the convention and discuss those matters and then conceal our action, conceal the statements that are made here, from the public? Has there been anything said here that is not true against the Bell Telephone Company? Not one word! I believe, gentlemen, in being open and above board. We have fought the Bell company for twelve long years, and we have fought it by speaking right out in meeting. We speak right out in the press. We speak right out in our own towns, and I want to tell you, gentlemen, that the public has so far stood by us—the people of West Virginia—till we have ten telephones to their one, and that has come from our method of speaking right out in meeting what we have got to say.

Mr. Thompson: If there are no other remarks, I desire simply to answer that.

The Chair: Has any one else anything to say on the subject?

Mr. Clement: If I may speak for the lawyers, who are known to be of flawless character, whom I think have been needlessly assailed, that can never be "retained," I think we have several living examples in the Association.

Mr. Thompson: My reason, gentlemen, for making this motion is, I believe, as a business proposition, that if you want to advertise your business to the public, you want to tell what you are doing, and you don't want to tell what your enemies are doing. Gentlemen, when you get in the Independent organization, such an organization as our competitors have, you will learn the value of not advertising their means and methods of business. We know what they are doing. We tell one another here. There is no one here that for a moment questions my position in the telephone field, I know. There is no one here that doubts my sincerity as an Independent telephone man, but I do heartily approve of the idea of keeping what is said about the competitors enclosed within our own breasts, and advertising to the public what we offer to the public—that is, good

service and plenty of it—and I think if we adopt that plan we will do better than to do the other way.

The Chair: Are you ready for the question?

Calls of "Question!"

The Chair: Before putting the question, I wish to ask Mr. Woodbury, chairman of the Press Committee, whether any of the report has already gone out.

Mr. Woodbury: Not a thing.

The motion was put and carried.

Mr. Higgins: The California Association would like to be advised as to how you got along with the railroads and the postoffice. That is one of the greatest troubles with us on the Pacific coast to-day. Can you advise us how to handle that?

The Chair: We have a number of gentlemen who have handled that to the queen's taste, I think. We would like to hear from some of them.

Mr. Hudson: Mr. Chairman, I would like to move that the matter of copyrighting the emblem that we have adopted be placed in the hands of the President of this Association, to have it copyrighted if he finds it practicable and deems it advisable.

The motion was seconded by Mr. Cook and carried.

The Chair: Now, then, is anyone ready to answer the gentleman from California on the subject of handling railroads?

Mr. Martin: I have just had a session with a superintendent of telegraph. He said to me: "If you fellows will stop throwing mud at the Bell and get together on your own hook and come in here and see me, we may do some business." We are furnishing something like eight or ten telephones to a certain railroad system. They pay for one. They say, "We don't need the others." We have been furnishing them for several years. We put in an order to take them out on the fifteenth day of June, and they are all coming out, not only the ones that they are not paying for, but the one they are paying for. If they can't pay for them all, we don't want them to pay for any. I don't know whether we can make it stick or not, but we are going to try. There is only one way to do—make them pay for the service. Have the patrons make them put in the service. We won't furnish it unless they pay for it.

Mr. Higgins: That doesn't help us much. We can't get them in either free, for transportation, or any other way. It means about 5,000 miles of telephone business. They are so tightly tied up with the Sunset, which is the Bell company, that we cannot approach them in any manner, either by the best men we can have call on them, or by memorials from thousands of subscribers. The United States government will not put them in, either. We have tried every conceivable way, and we wanted to know just how you stood in the east.

The Secretary: What objection does the United States government make to your telephones?

Mr. Higgins: They don't give any reason, only it is not convenient.

The Secretary: That must be a purely local condition. Cleveland is all right, isn't it?

A Member: We are actually getting paid for all the service.

The Chair: But you have got them in. Mr. Higgins says he can't get them in.

Mr. Higgins: They say they won't allow the postmaster to pay for his own telephone to put them in.

Mr. Woodbury: A letter issued by the Postmaster General provides that it is within the discretion of the postmaster that he is at liberty to install the system of telephones that he thinks best subserves the interests of his office. I have a copy of that letter that I will give you, if you want it.

Mr. West: I might say, for northeastern Pennsylvania, that we have some seven or eight telephones in different postoffices, and some quite large postoffices. I had a letter from the postmaster at Wilkesbarre saying that we might put a pay-station in if we would give him ten per cent of the gross receipts. The railroad question is a very difficult one. We find a great many railroads have exclusive contracts with the Bell company. The D. & H. company, which operates from New York to Albany, will probably have 300 of our telephones on their system in the next thirty days. On the Lehigh Valley we have probably twenty-five or thirty telephones; the exclusive contract ran out and we got in there. With the Lackawanna they have an exclusive contract, and probably will for a long time. We have about a dozen or fifteen free telephones in various parts of their operating system. The way we worked that was to get prominent freight shippers in various towns, friends of ours, to draw up resolutions. We had thirteen brewers get together and notify them that unless they put in our telephones they would ship over some other road. We got an order the next day to put in five telephones at five different stations. Of course, they are free.

The Chair: Can't you get the brewers to demand pay for those telephones?

Mr. West: We will try for that next.

Mr. Davis: The Postmaster General, about two or three years ago, issued an order that they would only pay for one telephone system, and that is the system having communication direct with Washington.

The Chair: I was talking that over in the department some time ago, and a member of the department said to me: "Don't you know that Postmaster General Payne is now dead? Didn't you also know that he was president of one of the subsidiary companies to the Bell Telephone Company?"

Mr. Davis: Our government telephones have not been removed, and have been paid for. We have internal department, postoffice, United States courts, etc.; they have all been paid for. We haven't a free telephone in any of the department instruments, and the B. & O. Southwestern railroad, a little railroad coming into our city, has both the Bell telephone and ours, the Bell being free and ours being paid for. We have never given the express companies free service, nor any of the railroad companies. We have never experienced any trouble, even when things were against us. The influence of the shippers made the company put in the telephones.

The Chair: One other question that ought to be taken care of, gentlemen, before we adjourn, is the matter of attending Mr. Sheerin's funeral. I think it would be very appropriate for a representative body from this convention to attend that funeral. I am ready to entertain a motion on the subject, and I presume we ought to have volunteers as to who can attend as our representatives.

Mr. Root: I move that it be left in the hands of the President to make the nomination.

The motion was seconded.

The Chair: Do you wish to designate the number, or shall it be left entirely in my hands?

Mr. Cole: Before putting that motion, I would suggest that a number of delegates from the south and from that state might pass through Indianapolis. It might be taken care of that way to advantage.

The motion was put and carried.

The Chair: I would now like to ask all those who can attend the funeral to come to my desk here as soon as this convention adjourns. It is very important that we have a representative body, and I hope that we may have enough volunteers who can make it convenient to attend. The next order of business will be presentation of new business. Has anybody any new business to present? You know our original programme—and we condensed it a little, due to the fact that we had practically no session at all yesterday—provides that Thursday is to be given over to viewing the ex-

hibits. We made this a very full day for you, and had planned to make yesterday a very full day, and it was practically consumed by the tragic occurrence we had here. The manufacturers have come here at very great expense to make a good exhibit. While I have not been able to visit them, I have been told that they have very fine displays, and I hope that as many of you as possible will stay over to-night and spend to-morrow examining the exhibits. I know it is very beneficial to us to get in thorough touch with what they are doing, and they tell me it is beneficial to them to know what our demands are, and you will have an opportunity to-morrow to talk with each other and to get better acquainted with what the manufacturers are doing. The banquet to-morrow night, of course, has been called off, on account of Mr. Sheerin's death, and, so far as I know, all matters of entertainment have been dropped also; but I have no doubt you will spend a very profitable day.

Mr. Higgins: May I ask what has been done with the money subscribed for the banquet? There was some talk of its being turned over to the Association as a fund.

The Chair: Mr. Gary has a statement to make.

Mr. Gary: We have a committee appointed, as you know, to confer with the manufacturers—a committee of five—over this matter that has just been brought up, perhaps with a similar committee to be appointed by the manufacturers; but they have been busy and their work has been delayed, and they have not been able to make a report. We are assured, however, of substantial support from them, and in view of the fact that the manufacturers, who, you understand, have no membership in the Association, have come here and made an exhibit, we ought to make a special effort to give them some attention to-morrow. We ought to make that just as much a part of the convention's work as the work itself, since that is the only thing that we can do for them, in view of their assisting us in a substantial way to meet the expenses of the Association.

The Chair: Has any one any further statements to make for the good of the Association? I am very much gratified, indeed, at the harmony that has prevailed all the way through the proceedings, and to find that we are not only harmonious as an organization, but, so far as I have been able to learn, the manufacturers and journals are extremely well pleased with the plans that we are working under, and are giving us most hearty co-operation. That is also true of the outside engineers and those who are affiliated with our business, and if we can keep this spirit up for another year and everyone go home now with the determined idea of thoroughly organizing his state and dividing it into districts, I have no doubt at all that we shall require a larger hall than this to take care of the regular delegates and the visitors that will attend the next convention. I know of no other business to come before you at this time, and therefore I will entertain a motion to adjourn.

A Member: I would like to ask a question. Those of us who are not familiar with the constitution do not know just how you are going to raise the money to run the Association, the amount of the dues, or anything of that kind. I don't know what has been done.

The Chair: I will answer the gentleman that our constitution provides for an assessment of one cent per unit—that is, one mile of toll line circuit, or one telephone. During the past year the expenses have not been heavy, of course. There have been some traveling expenses of Mr. Gary and myself, some printing, stenographic work, postage and things of that character, and, of course, there may be some expense in connection with the hotel in holding this convention—committee rooms, and things of that kind. Just how much that will amount to, I can't tell exactly. It will not exceed, according to the best estimate we can get, $2,000. That is for the last year, up to the close of this convention. There is a small bill which the Consolidation Committee agreed to take care of for the National-Interstate, which has been referred to the Auditing Committee, to ask for more details about certain items, and which will no doubt be taken care of all right. We have had a committee meet the manufacturers and the supply men on the subject which Mr. Gary referred to, and we are assured by them that they are ready to give us substantial support in carrying on this organization. They appreciate its worth to them, and are willing to co-operate. It need not be a burden to anyone if we can properly adjust it and properly distribute the assessments or fees, as provided under the constitution. The different states have been coming in during the last three months, and we have not known what percentage to levy. At one time we thought of sending out an assessment of one-quarter of one cent per unit, which would have more than taken care of it, according to the present units of the Association. But we will now simply consolidate that with this year's business. You will probably get an assessment of something like one-quarter cent per unit some time in the next sixty days, and the balance will run along, according to the work of the Executive Committee and the officers feel called upon to perform. I take it that everyone feels the importance of having an aggressive organization this year. It has been discussed that we have a press headquarters some place, where data, statistics, and so forth can be gathered and distributed, certain advertising matter gathered and distributed, and certain other things that will naturally go with these, in order to advance the organization. If anyone has anything, I will be glad to hear from him at this time. The Secretary will read the section that refers to that.

The Secretary then read Article X, "Membership."

Mr. Gary: Mr. President and Gentlemen of the Association: In our Missouri organization we levied two cents per unit; one cent per unit we have ready for the National Association. We have in our state association a little in excess of 50,000 units. In talking over the scope of the work to be carried on, I have found, as far as I have gone, that it is the general opinion of all that we should do a good deal of work in the way of publicity, and in the way of assisting in organization; and in making a preliminary estimate of what we would probably need for the coming year, several of the committee, without any official action, have made an estimate of from $12,000 to $15,000. That would cover the expense, running in the neighborhood of $2,000 or $3,000, for carrying on the work, the rest to be used in hiring a suitable editor and sending one or more men to visit the different states and encourage organization. In order to get at the sense of the meeting on that question, I would like to bring this up and have it discussed, whether it meets your views that we shall go into the work quite extensively, or whether we shall attempt to get along as we have been getting along, with simply the expenses of the convention. I for one do not favor that kind of work. I think we ought to do something. I am in favor of employing some competent editor to compile our stories, get them into the press, and of employing suitable persons to go into the different states and encourage organization and keep telling our story there.

Mr. Higgins: I endorse the sentiment just expressed. I do not believe in consolidation. I believe in association of interests. When we consolidate, we place our companies in the hands of one or two individuals, and we make it possible for such a thing to be enacted as was enacted recently in Indiana; and I think if we go on the line of publication and association that we can get all the advantages that can be derived from consolidation, and eliminate the defects. We need the small exchange. In Japan's great naval victory you know the battleships held the Russian craft in check, but it was the torpedo boats—the farmers' lines, if you please—that aided most. I believe that the rural lines, the farmers' telephones, and so forth and so on,

are necessary to development, and the consolidation of these interests is detrimental; therefore, I endorse the sentiments of Mr. Gary fully.

Mr. Fisher: I think, Mr. President, the whole matter of the action as to publicity and promotion hereafter may be left very readily to the Executive Council. I see the numbers of those of us who are left here are rather meager. Of course, those who are here are competent to take care of it, if desirable, but it is getting a little bit late, and I have implicit confidence in the President and his cabinet and the council that will be appointed in the next few days. If they want a cent, they will let us know, and if they find a half cent necessary, they will let us know; and I think the use of the money can safely and properly be left to that council.

The Chair: I will say, gentlemen, that Ohio has arranged to spend somewhere between $8,000 and $15,000 this year on their organization. They have employed a president to give his entire time and attention to the organization, have arranged to open an office in Columbus, and have also arranged other things that will take somewhere near these figures; and a number of us have agreed to stand back of it. The companies are coming to the front very nicely, and I do not think there will be any trouble at all in putting the whole thing through. One thing I forgot to mention. The gentleman who has this sign in hand requested me to say that, whatever sign might be adopted, he would be prepared to make them, and in lots of one hundred they would cost thirty-nine cents; but in lots of 10,000 they could be made at ten cents each. That is a wonderful saving, gentlemen, and he suggests that if orders be taken at one office they would be glad to take the order and ship the signs wherever wanted. He can be found at room 604, and it seems to me it would be very desirable to assemble one order for those signs, and possibly some such arrangement can be made with the other people who make signs, so that we can get started on an economical basis. If it is the wish of the Association, I will take it up and see what prices can be made.

The Secretary: I will say, Mr. President, that the report of the Advertising Committee provides for just such a recommendation as Mr. Gary has made—that an advertising and publicity bureau be established, under the direction of the Executive Council, employing such competent help as may be necessary.

Col. J. D. Powers: Mr. President, I want to make a very important motion, as it seems to me. We have elected a President, a Vice-President, a Treasurer and a Secretary in whom we have the utmost confidence. The President will select the Executive Council in fifteen days, and in the interim between this convention and the next convention they will constitute the Association and have full authority. Believing that such appointments will be made as will be entirely agreeable to the best interests of this Association, I now move that this convention adjourn *sine die*.

The motion was put and carried.

COMMITTEES APPOINTED.

Following is a list of the committees appointed for the ensuing year:

Executive—W. D. Barnard, Pennsylvania; Ed. L. Barber, Ohio; Col. J. D. Powers, Kentucky; Theodore Gary, Missouri; John Van Liew, California; George W. Beers, Indiana; Richard Valentine, Wisconsin; Charles C. Deering, Iowa.

Litigation and legislation.—Dwight E. Sapp, Ohio; Breckenridge Jones, Missouri; E. E. Clement, Washington, D. C.; J. B. Ware, Michigan; Illinois (member to be selected).

Auditing.—James G. Splane, Pennsylvania; George W. Beers, Indiana.

Assistant Secretary.—John A. Harney, Cleveland, Ohio.

CONVENTION COMMITTEES.

Full praise should be given the committees for their part in making the convention the success it was. Following is a list of the committee members:

Standard Forms of Accounting.—H. E. Bradley, secretary Eastern Traffic Association, Philadelphia, Pa.; B. H. Lang, auditor Cuyahoga Telephone Company, Cleveland, O.; C. E. Archer, auditor Louisville Home Telephone Company, Louisville, Ky.; H. B. Sale, secretary and treasurer New Long Distance Telephone Company, Indianapolis, Ind.; Chas. F. Bender, auditor Pittsburg & Allegheny Telephone Company, Pittsburg, Pa.; J. B. Ware, Citizens' Telephone Company, Grand Rapids, Mich.; Geo. R. Fuller, secretary and treasurer Rochester Telephone Company, Rochester, N. Y.; W. Roy McCanne, secretary Kinloch Long-Distance Telephone Company, St. Louis, Mo.; C. J. Feyers, auditor Kansas City Home Telephone Company, Kansas City, Mo.; John Van Liew, general manager Home Telephone & Telegraph Company, Los Angeles, Cal.; Wm. Van Middlesworth, manager Citizens' Telephone Company, Racine, Wis.; F. M. Brown, Haskins & Sells, Chicago.

Standard Operating Rules and Regulations.—A. L. Tetu, manager Home Telephone Company, Nashville, Tenn.; C. E. Tarte, general manager Citizens' Telephone Company, Grand Rapids, Mich.; W. R. Prior, traffic manager Consolidated Telephone Companies of Pennsylvania, Allentown, Pa.; F. B. Buffum, manager Buffum Telephone Company, Louisiana, Mo.; J. P. Boylan, traffic manager Cuyahoga Telephone Company, Cleveland, O.; J. B. Casey, traffic manager Kinloch Telephone Company, St. Louis, Mo.; J. C. Harper, president Dorne County Telephone Company, Madison, Wis.; F. M. Potter, general manager Syracuse Telephone Company, Syracuse, N. Y.; W. D. Handlan, manager National Telephone Company, Wheeling, W. Va.; J. B. Earle, general manager Texas Telephone Company, Waco, Texas; William Moellering, secretary National Telephone & Telegraph Company, Fort Wayne, Ind.; A. B. Conklin, general manager Interstate Independent Telephone & Telegraph Company, Aurora, Ill.

Standardization of Equipment.—Sidney Hand Brown, vice-president and general manager Pittsburg & Allegheny Telephone Company, Pittsburg, Pa.; W. C. Polk, general superintendent Kansas City Home Telephone Company, Kansas City, Mo.; C. H. Ledlie, Kinloch Telephone Company, St. Louis, Mo.; O. F. French, general manager Cuyahoga Telephone Company, Cleveland, O.; Edward E. Clement, McGill Building, Washington, D. C.; Geo. W. Beers, Ft. Wayne, Ind.; C. E. Willson, general manager Keystone Telephone Company, Philadelphia, Pa.; J. J. Comer, Maryland Telephone & Telegraph Company, Baltimore, Md.; Edward Land, Citizens' Telephone Company, Grand Rapids, Mich.; R. S. Redman, manager Jasper County Telephone Company, Newton, Iowa; John A. Armstrong, president Louisville Home Telephone Company, Louisville, Ky.; M. H. Clapp, engineer conference committee New Long-Distance Telephone Company, Indianapolis. Ind.

Best Methods of Advertising.—Thos. Loftin, Indianapolis Telephone Company, Indianapolis, Ind.; J. A. Hudson, Columbus, O.; Vinton A. Sears, treasurer Automatic Telephone Equipment Company, Boston, Mass.; G. T. Everett, secretary Nebraska Independent Telephone Association, Columbus, Neb.; W. H. S. Houck, Union Telephone Company, Erie, Pa.; H. A. Douglas manager Cedar Rapids & Marion Telephone Company, Cedar Rapids, Iowa; John Schweiger, president La Crosse Interurban Telephone Company, La Crosse, Wis.; John Jolly, secretary Frontier Telephone Company, Buffalo, N. Y.; M. B. Overly, general manager United States Telephone Company, Cleveland, O.; Frank C. Smith, president Citizens' Telephone Company, Houston, Texas; W. J. Melchers, Alma, Mich.; C. J. Simmons, president Atlanta Telephone & Telegraph Company, Atlanta, Ga.

Arrangements Necessary Between Operators and Manufacturers to Protect Independent Companies.—Thomas Bromley, Muncie, Ind.; Ed. L. Barber, Wauseon, O.; J. B. Rhodes, manager Zanesville Telephone & Telegraph Company, Zanesville, O.; H. C. Walls, Marion, Kas.; H. Linton Reber, general manager Kinloch Telephone Company, St. Louis, Mo.; E. B. Fisher, secretary Citizens' Telephone Company, Grand Rapids, Mich.; Richard Valentine, president Wisconsin Independent Telephone Association, Janesville, Wis.; S. P. Sheerin, president Indianapolis Telephone Company, Indianapolis, Ind.; C. H. Judson, constructing engineer Independent Telephone Company, Council Bluffs, Iowa; C. O. Trask, manager Co-Operative Telephone Company, Detroit, Mich.

Press Committee.—W. B. Woodbury, assistant general manager Cuyahoga Telephone Company, Cleveland, O.; W. H. McDonough, editor American Telephone Journal, New York; S. S. Lichty, editor Western Telephone Journal, Vinton, Iowa; W. H. Graffis, advertising manager Telephone Magazine, Chicago, Ill.; W. H. Martin, editor Sound Waves, Chicago, Ill.; H. B. McMeal, editor TELEPHONY, Chicago, Ill.; Norman F. Obright, assistant editor Western Electrician, Chicago, Ill.; Lucien W. Marshall, Chicago manager Electrical Review, Chicago, Ill.; R. B. McPherson, president Livingston Home Telephone Company, Howell, Mich.; L. F. Lundy, secretary Castlewood Telephone Company, Castlewood, S. D.

LIST OF ATTENDANTS.

Following is a list of delegates, alternates and visitors to the ninth annual convention of the National-Interstate Telephone Association:

ALABAMA.—Bryant, W. H., vice-president Home Telephone Com-

pany, Mobile; Zeluff, J. E., superintendent Central Telephone Construction Company, Birmingham.

CALIFORNIA.—Higgins, P. Kerr, general manager U. S. Long Distance Telephone & Telegraph Company, Los Angeles; Spencer, P. T., general manager Alhambra, Downey & Whittier Telephone Company, Los Angeles; Wardman, Gus, local manager Whittier Home Telephone & Telegraph Company, Los Angeles.

COLORADO.—Paxton, George B., Denver.

DISTRICT OF COLUMBIA.—Edward E. Clement, Washington.

CUBA.—Conklin, Roland R., president Cuban Telephone & Telegraph Company, Havana; Jarvis, Samuel W., Cuban Telephone & Telegraph Company, New York office, 111 Broadway; Talbot, H. M., superintendent Red Telephonica de la Havana, Havana.

ILLINOIS.—Bowen, L. V., Carroll County Independent Telephone Company, Savanna; Conklin, A. B., treasurer Interstate Independent Telephone & Telegraph Company, Aurora; Camp, C. A., president Henry Telephone Company, Henry; Conklin, E. R., Interstate Telephone & Telegraph Company, Aurora; Donaldson, J. H., Eaton Telephone Company, Owaneco; Farwell, Hart F., Home Telephone Company, Bloomington; Forbes, C. W., superintendent United Telegraph, Telephone & Electric Company, Chicago; Glandon, Ed. D., secretary and manager Pike County Telephone Company, Pittsfield; Hyneman, L. F., president Lexington Home Telephone Company, Lexington; Herrick, L. A., Stephenson County Telephone Company, Freeport; Hennis, E. C., secretary Knox Telephone Company, Sandwich; Linville, Ross, Pike County Telephone Company, Pittsfield; Leffler, C. E., Lexington Home Telephone Company, Lexington; Miller, A. W., manager Varna Telephone Exchange, Varna; Maxwell, A. T., Illinois Tunnel Company, Telephone Department, Chicago; Painter, George M., Chicago; Ramsey, W. H., general manager Auburn Telephone Company, Auburn; Schuler, Albert, Streeter Independent Telephone Company, Streeter; Sabin, I. C., auditor National Telephone & Electric Company, Clinton; Vernies, A. J., manager Eastern Illinois Independent Telephone Company, Kankakee; Wasson, B. F., National Telephone & Electric Company, Clinton; Kelly, F. W., manager Interstate Telephone & Telegraph Company, Springfield.

INDIANA.—Bromley, Thomas, general manager Delaware & Madison Counties Telephone Company, Muncie; Bell, J. H., manager Hoosier Telephone Company, Salem; Brown, J. A., secretary Winchester Telephone Company, Winchester; Barnhill, O. H., manager Winchester Telephone Company, Winchester; Beers, George W., Fort Wayne; Dorland, R. O., secretary Laporte Telephone Company, Laporte; Koontz, C. E., manager Breman Telephone Company, Breman; Moellering, William L., secretary National Telephone & Telegraph Company, Fort Wayne; Harry Webster, Richmond Home Telephone Company, Richmond; Orr, D. O., manager Attica Telephone Company, Attica; White, Frank, president Home Telephone Company, Portland; Weik, Jesse W., president Greencastle Telephone Company, Greencastle; Yarling, Dr. John E., general manager Peru Home Telephone Company, Peru; Haus, W. W., manager Laporte Telephone Company, Laporte; Johnston, J. R., secretary Home Telephone Company, Elkhart.

INDIAN TERRITORY.—Dryer, Ervin, Chickasaw Company, Ordmore.

IOWA.—Albertsen, J. M., exchange manager Woodbine Telephone Company, Logan; Bellamy, J. S., president Mutual Telephone Company of Des Moines, Des Moines; Bandy, Geo. N. Hawkeye Telephone Company, Des Moines; Deering, Charles C., Boone County Telephone Company, Boone; Douglas, H. A., manager Cedar Rapids & Marion Telephone Company, Cedar Rapids; Holdoegel, P. C., secretary and manager Central & Mutual Telephone Company, Rockwell City; Hamm, C. S., assistant manager Davenport & Tipton Telephone Company, Tipton; J. S. Herr, Ottumwa; Judson, C. H., Council Bluffs; Independent Telephone Company, Council Bluffs; Kinney, H. A., Woodbine Telephone Company, Woodbine; Kinney, Harvey S., Woodbine Telephone Company, Woodbine; Lichty, S. S., secretary Corn Belt Telephone Company, Waterloo; Martin, E. H., president Martin Telephone Company; Webster City; McElroy, Geo. D., Corn Belt Telephone Company, Vinton; Mahan, L. S., secretary La Mars Telephone Company. Lamars; Newen, E. Duke, Central Iowa Telephone Company, Iowa Falls; Plaister, Jos. M., manager Fort Dodge Telephone Company, Fort Dodge; Reed, Harold, Woodbine Telephone Company, Woodbine; Quinn, P. T., Corn Belt Telephone Company, Waterloo; Shoemaker, James H., general manager Corn Belt Telephone Company, Waterloo; Stacy, F. H., Rural Telephone Company, Anita; Thomas, J. C., Jefferson County Telephone Company, Fairfield.

KANSAS.—Hemphill, W. P., secretary and treasurer Independent Telephone Company, Topeka; Nelson, W. H., president Exchange Telephone Company, Smith Center; Siko, Wm. F. Wellington Independent Telephone Company, Wellington; Walls, Charles E., president South Water Telephone & Electric Company, Marion.

KENTUCKY.—Armstrong, J. A., president Louisville Home Telephone Company, Louisville; Bergin, J. E., Paducah Home Telephone Company, Paducah; Cole, H. K., secretary and general manager Kentucky & Indiana Telephone & Telegraph Company, Owensboro; Powers, J. D., vice-president Independent Long-Distance Telephone & Telegraph Company, Louisville.

MASSACHUSETTS.—Sears, Vinton A., treasurer Automatic Telephone and Equipment Company, Boston.

MICHIGAN.—Britton, Geo. C., Citizens' Telephone Company, Grand Rapids; Fisher, E. B., secretary Citizens' Telephone Company, Grand Rapids; Fildew, J. H., secretary Union Telephone Company, Alma; Hutchins, H. H., manager Saugatuck & Ganges Telephone Company, Ganges; Jeffrey, H. E., manager Union Telephone Company, Mt. Pleasant; Melchers, W. J., general manager Union Telephone Company, Alma; Land, Edmund, Citizens' Telephone Company, Grand Rapids; McPherson, R. B., president Livingston Home Telephone Company, Howell; Price, H. A., secretary Saginaw Valley Telephone Company, Bay City; Robinson, William, manager Citizens' Telephone Company, Muskegon; Root, George S., secretary and manager Lake Shore Telephone Company, Hart; Tarte, C. E., Citizens' Telephone Company, Grand Rapids; Vivian, W. S., manager Michigan Independent Telephone Traffic Association, Grand Rapids; Ware, J. B., Citizens' Telephone Company, Grand Rapids; Taggart, T. E., manager Valley Telephone Company, Vassar.

MISSISSIPPI.—Goodnaught, I. H., manager Central Mississippi Telephone Company, Louisville; Wier, R. K., Starkville Telephone & Power Company, Starkville.

MISSOURI.—Bassett, Wm. H., traffic manager, Kinloch Long Distance Company, St. Louis; Chaney, S. E., Independent Home Telephone Company, Independence; Denison, Ernest B., Kinloch Long Distance Telephone Company, of Missouri, St. Louis; Golladay, M. W., secretary and general manager Holden Telephone Company, Holden; Gary, Theodore, president and manager Home Telephone Company, Joplin; Macon Telephone Company, Macon; Merrill Telephone Company, Merrill; Grayson, W. W., Kinloch Long-Distance Telephone Company, St. Louis; Haley, J. S., secretary and treasurer Independent Telephone Company, Independence; Hughes, A. B., Hardin Telephone Exchange, Hardin; Hudson, J. A., president and manager Columbia Telephone Company, Columbia; Cavinaugh, W. J., Kansas City Home Telephone Company, Kansas City; McHenry, Houck, Capitol Telephone Company, Jefferson City; McCanne, W., Roy, secretary Kinloch Long Distance Telephone Company of Missouri, St. Louis; Myers, C. J., superintendent Kansas City Long Distance Telephone Company, Kansas City; Newell, J. J., president Citizens' Telephone Company, St. Joseph; Polk, W. C., Kansas City Home Telephone Company, Kansas City; Snyder, O. C., vice-president and general manager Kansas City Telephone Company, Kansas City; Buffum, F. B., manager Buffum Telephone Company, Louisiana; Gary, Hunter, acting secretary Macon Telephone Company, Macon; Bailey, H. L., Borland Telephone Company, Higginsville.

NEBRASKA.—Burk, John T., Omaha; Everett, E. G., secretary and manager Platte County Independent Telephone Company, Columbus; Ewing, John M., Nebraska City Telephone Company, Nebraska City; Gesler, J. H., manager Union Telephone Company, Mansa; Munn, A. M., general manager Nebraska City Telephone Company, Nebraska City; Woods, Frank H., president Lincoln Telephone Company, president Western Telephone Company, Lincoln; Kryder, A. A., Manager Havana Telephone Company, Indianola.

NEW YORK.—Babcock, Garrison, vice-president Home Telephone Company, Albion; Ferris, T. Harvey, treasurer N. Y. State Independent Telephone Association, Utica; Johnson, Shirley E., Fisk & Robinson, Bankers, N. Y.; Nuttall, H. A., Buffalo; Rawson, S. B., Albany Home Telephone Company, Albany.

OHIO.—Adams, George, Millersberg, Wooster & Orville Telephone Company, Millersburg; Barber, E. L., Wauseon; Beam, Frank L., president Ohio Independent Telephone Association, Columbus; Berry, H. A., Marion County Telephone Company, Marion; Boylan, J. P., Cuyahoga Telephone Company, Cleveland; Couden, L. C., Gallipolis Telephone Company, Gallipolis; Fee, Wm. R., New Citizens' Telephone Company, Batavia; Forrest, C. Burr, general manager Gallipolis Telephone Company, Gallipolis; French, O. F., general manager Cuyahoga Telephone Company, Cleveland; Grauel, C. E., manager Panesville Telephone Company, Panesville; Herron, M. M., general manager Millersburg, Wooster & Orville Telephone Company, Millersburg; Hilderbrant, C. L., Clinton Telephone Company, Wilmington; Horning, W. A., Chardon, Leroy & Thompson Telephone Company, Chardon; James B. Hoge, secretary United States Telephone Company, Cleveland; Hood, Charles H., vice-president and general manager Tuscarawas County Telephone Company, New Philadelphia; Hollander, Charles E., manager Newark Telephone Company, Newark; Knapp, Frank, secretary Local Telephone Company, Norwalk; Belleview Home Telephone Company, Belleview; McVey, C. Y., assistant general manager Federal Telephone Company, Cleveland; Miller, H. P., general manager Home Telephone Company, Dayton; Metheany, Geo. H., secretary and manager Lima Telephone & Telegraph Company, Lima; Odafer, D. M., secretary and general manager Marion County Telephone Company, Marion; Oberly, M. B., general manager United States Telephone Company; Cleveland; Perdue, Morton, superintendent Stark County Telephone Company, Canton; Reamer, Ralph, secretary and treasurer Ohio Independent Telephone Association, Columbus; Rhodes, J. B., secretary and general manager Zanesville Telephone & Telegraph Company, Zanesville; Salzscaber, G. M., president Van Wert Home Telephone Company, Van Wert; Sapp, Dwight E., Mt. Vernon Telephone Company, Mt. Vernon; Stinson, C. E., general

manager Toledo Home Telephone Company, Toledo; Chapman, F. S., manager Kenton Telephone Company, Kenton; Taylor, Morris, manager Eastern Ohio Telephone Company, East Rochester; Thedieck, I. H., Sidney Telephone Company, Sidney; Thorpe, Clinton, secretary Clinton Telephone Company, Wilmington; Thompson, W. Gilbert, manager Hamilton Home Telephone Company, Hamilton; Troutman, Otto, Millersburg, Wooster & Orville Telephone Company, Shreeve; Ward, S. E., Mansfield Telephone Company, Mansfield; French, O. F., general manager Cuyahoga Telephone Company, Cleveland; Gibson, David, North Electric Company, Cleveland; Grauel, C. E., manager Panesville Telephone Company, Panesville; Herron, M. M., general manager Millersburg, Wooster & Orville Telephone Company, Millersburg; Hildebrant, C. L., Clinton Telephone Company, Wilmington; Horning, W. A., Chardon, Leroy & Thompson Telephone Company, Chardon; James B. Hoge, secretary U. S. Telephone Company, Cleveland; Hood, Charles H., vice-president and general manager the Tuscarawas County Telephone Company, New Philadelphia; Hollander, Charles E., manager Newark Telephone Co., Newark; Knapp, Frank, secretary Local Telephone Company, Norwalk, Belleview Home Telephone Company, Belleview; McVey, C. Y., assistant general manager Federal Telephone Company, Cleveland; Miller, H. P., general manager Home Telephone Company, Dayton; Motheany, Geo. H., secretary and manager Lima Telephone & Telegraph Company, Lima; Odafer, D. M., secretary and general manager Marion County Telephone Company, Marion; Oberly, M. B., general manager W. S. Telephone Company, Cleveland; Perdue, Morton, superintendent Stark County Telephone Company, Canton; Remier, Ralph, secretary and treasurer Ohio Independent Telephone Association, Columbus; Rhodes, J. B., secretary and general manager Zanesville Telephone & Telegraph Company, Zanesville; Sapp, Dwight E., Mt. Vernon Telephone Company, Mt. Vernon; Stinson, C. E., general manager Toledo Home Telephone Company, Toledo; Chapman, F. S., manager Kenton Telephone Company, Kenton; Taylor, Morris, manager Eastern Ohio Telephone Company, East Rochester; Thedieck, I. H., Sidney Telephone Company, Sidney; Thorpe, Clinton, secretary Clinton Telephone Company, Wilmington; Thompson, W. Gilbert, manager Hamilton Home Telephone Company, Hamilton; Troutman, Otto, Millersburg, Wooster & Orville Telephone Company, Shreeve; Ward, S. E., Mansfield Telephone Company, Mansfield, O.; Woodbury, W. B., assistant general manager Cuyahoga Telephone Company, Cleveland.

PENNSYLVANIA.—Anderson, J. N., Pittston; Bender, Charles F., Aud, Pittsburg & Allegheny Telephone Company, Pittsburg; Berg, Charles A., general manager Maryland, Pennsylvania & West Virginia Telephone & Telegraph Company, Uniontown; Bradley, H. E., secretary Pennsylvania State Independent Telephone Association of Philadelphia, Philadelphia; Houck, H. S., Union Telephone Company, Erie; Kelly, John W., Jr., superintendent of Equipment, Keystone Telephone Company, Philadelphia; Latta, S. G., vice-president Elk Telephone & Telegraph Company, Wilcox; Lee, A. W., vice-president Huntington & Clearfield Telephone Company, Clearfield; Mayer, Charles J., treasurer Pittsburg-Johnstown Long-Distance Telephone Company, Johnstown; Shoemaker, A. C., Pittston; Splane, J. G., president P. & A. Telephone Company, Pittsburg; Schade, E. D., secretary and general manager Johnstown Telephone Company, Johnstown; West, Charles, general superintendent Consolidated Telephone Companies of Pennsylvania, Allentown.

SOUTH DAKOTA.—Crothers, P. R., division superintendent Dakota Central Telephone Company, Brookings; Lundy, L. F., manager Castlewood Telephone Company, Castlewood; Maxwell, C. C., Arlington, Hetland Telephone Company, Arlington; Zietlow, J. L. W., president Dakota Central Telephone Company, Aberdeen.

TENNESSEE.—Smith, N. D., Jackson Home Telephone Company, Jackson; Tetu, A. L., general manager Nashville Home Telephone Company, Nashville.

TEXAS.—Dunaway, E. W., general superintendent Citizens' Telephone Company, Paris; Gooch, Horace, general manager Amarillo Telephone Company, Amarillo; Young, Briggs, president Citizens' Telephone Company, Paris; Fitzgerald, B. F., engineer Texarkana Telephone Company, Texarkana.

WEST VIRGINIA.—Barnes, J. Walter, general manager Consolidated Telephone Company, Fairmount; Bugley, Lloyd, president Bugley Telephone Company, Neston; Davis, A. C., general manager West Virginia Western Telephone Company; Parkersburg; Handlan, W. C., general manager National Telephone Company of West Virginia, Wheeling; Hutchinson, Lon H., manager Huntington Mutual Telephone Company, Huntington, West Virginia.

WISCONSIN.—Enochs, C. B., chief engineer Vought-Berger Company, La Crosse; Goodrich, W. F., La Crosse Telephone Company, La Crosse; Murray, J. A., manager Baraboo Telephone Company, Baraboo; Vanmittlesworth, Wm., manager Citizens' Telephone Company, Racine; Valentine, Richard, president Wisconsin Independent Telephone Association, Janesville; Winter, H. C., secretary Dam County Rural Telephone Company, Dam County, Wis.; Wilder, G. W., Cambridge Telephone Company, Cambridge, Wis.; Professor Telephone Engineering Armour Institute Technology.

CANADA.—Dagger, F., technical assistant to select committee on telephone systems to House of Commons, Ottawa, Canada.

CONVENTION EXHIBITORS.

The list of exhibitors, accompanied in each case by the names of those in charge of the display, follows in full.

The exhibits of the Sterling Electric Company in the large writing room and the Swedish-American Telephone Company's exhibit in the South Parlor were the most elaborate ever made at any telephone convention.

Ackerman-Boland Telephone Company, Chicago—James F. Boland, president; Charles F. Ackerman, secretary; W. F. Taylor, traveling representative.

Addressograph Company, Chicago—J. B. Hall, Manager; D. W. Hall, traveling representative; C. Worthington, Mr. Welford, city salesmen.

American Electric Fuse Company, Chicago—Frank G. Jones, president; J. A. Kenney, general manager; H. S. Bonney, traveling salesman.

American Clock Company, Chicago—G. F. Randall, manager; G. J. M. Porter, sales agent.

American Conduit Company, Chicago—A. L. Waterbury, general sales agent.

American Electric Telephone Company, Chicago—P. C. Burns, president; J. G. Ihmsen, general manager; N. W. Zabal, manager sales department; John Reed, C. B. Speed, T. H. Ewing, George B. Roberts, J. C. Henderson, P. J. Eubank, W. P. Haupman, H. B. Blackledge, traveling representatives.

American Electrical Supply Company, Chicago—F. D. Phillips, general manager; William R. Price, Chicago and Illinois representative; E. J. Johnson, southern Illinois; J. J. Shaller, C. A. Robinson, city salesmen; F. L. Merrill.

American Steel and Wire Company, Chicago—Wayne C. Bogue, C. A. Wanner, George Long, N. R. McLoed, sales agents.

Armour Institute (Telephone Exhibit), Chicago—Prof. George W. Wilder.

Julius Andrae & Sons Company, Milwaukee—Otto Borchert, western representative.

Automatic Electric Company, Chicago—H. S. Durant, J. F. Crook, A. J. Rosseau, C. L. Fisher, sales department; H. H. Woodworth, advertising manager; A. Skalowski, installing department.

Baird Manufacturing Company, Chicago—Edward P. Baird, president; Oliver Dennis, manager; H. von Obstfelder, Jr., assistant manager; N. E. Norstrom, superintendent lockout telephone department.

F. Bissell Company, Toledo, Ohio—F. Bissell, president; J. Alex. Navarre, manager pole department; W. S. Bissell, M. S. Walker, F. M. Knierim, traveling representatives.

Burdick Sign Company, Chicago—F. M. Burdick, president.

Central Telephone and Electric Company, St. Louis—James S. Cuming, president; G. N. Cuming, George F. Poertner, salesmen.

Century Telephone Construction Company, Buffalo, New York—B. G. Hubbell, president; G. F. C. Bauer, sales manager; W. W. Kidney, engineer; Lloyd E. Knapp, Kansas representative; H. S. Grant, Indiana.

Chicago Telephone Supply Company, Elkhart, Indiana—George A. Briggs, president; H. C. Randall, secretary-treasurer; A. J. Briggs, general manager; George W. Brown, superintendent salesmen; E. L. Kerstetter, office manager; W. E. Raymond, chief clerk; S. A. Duvall, chief engineer; H. E. Beeskow, cashier; C. A. Brownrigg, engineer; J. C. Myers, Ohio representative.

Chicago Writing Machine Company, Chicago—J. E. Baumrucker, general manager telephone department; L. R. Warren, city salesman; Miss Eva Mabbs, office stenographer.

Frank B. Cook, Chicago—Frank B. Cook; Frank W. Pardee, general manager; F. R. Parker, patent engineer; H. R. Cook, purchasing agent; G. C. Fricke, Wisconsin, Minnesota and Illinois representative; James Strasbury, eastern representative; M. A. Gurney, Indiana and Ohio; C. C. Newburn, southern representative; F. A. Rader, Kansas, Nebraska and Indian Territory.

A. J. Cox & Company, Chicago—Alfred Cox.

W. H. Crumb & Company, Chicago—W. H. Crumb, D. Crumb.

Dean Electric Company, Elyria, Ohio—S. B. Rawson, president; A. E. Barker, general manager; A. D., T. Libby, power engineer; R. H. Manson, chief engineer; L. E. Hamilton, chief draughtsman; W. H. Scott, Fred E. Freers, traveling salesmen.

Denio General Electric Company, Rochester, New York—Garrison Babcock, consulting engineer; John A. Nolan, business manager.

Edwards-Hine Company, Grand Rapids, Michigan—W. H. Edwards, vice-president and manager; Charles C. Wilmot, H. G. Bedford, accountants.

Electric Appliance Company, Chicago—S. A. Dinsmore, manager telephone department; M. R. Nyman, sales manager telephone department; H. R. Remington, Illinois representative.

Electric Gas Lighting Company, Boston—J. Allen Haines, Chicago manager; T. S. Boardman, electric engineer; R. T. Lyon, assistant manager; Paul J. Recher, electrical expert, Chicago office.

Electro-Chemical Engraving Company, Brooklyn, New York—Alfred Hilton Cassidy, western representative.

Eureka Electric Company, Genoa, Illinois—R. S. Mitten, sales manager; J. L. Whittaker and George H. Pierce, traveling representatives; C. W. Robbins, electrical engineer.

Everstick Anchor Company, Quincy, Illinois—J. Blackburn, J. J. Howard.

Ewing-Merkle Electric Company, St. Louis—L. G. Le Bourveau, manager telephone department.

Farr Telephone and Construction Supply Company, Chicago—C. W. Farr, president; E. W. Hurst, general manager; John E. Brown, salesman.

Fisk-Newhall Telephone Manufacturing Company, Chicago—H. M. Fisk.

General Engineering Company, Chicago—George W. Conover & Company.

George W. Conover & Company, Chicago—George W. Conover; T. P. Hayes, city salesman.

Gray Telephone Pay-Station Company, Hartford, Connecticut—George W. Conover & Company.

Haller Machine Company, Chicago—Carl Haller, president.

Illinois Electric Company, Chicago—N. G. Harvey, general sales manager; C. J. Litscher, Michigan representative; E. A. Quarfot, Indiana; O. T. Kimmel, Iowa.

International Telephone Company, Chicago—Henry Shafer, president; W. H. McCormick, general manager; F. L. Middleton, sales manager; J. C. Murray, Iowa representative; H. H. Davenport, Illinois; M. C. Inslee, Missouri.

M. B. Austin & Company, Chicago—M. B. Austin, president; W. A. Brown, treasurer; A. Mienema.

Malthaner Electric Manufacturing Company, Minneapolis, Minnesota—C. Malthaner.

Manufacturers' Distributing Company, Cleveland, Ohio—M. M. Wheelock, salesman.

Miller Anchor Company, Norwalk, Ohio—G. H. Miller, president; F. B. Miller, vice-president.

Monarch Electric and Wire Company, Chicago—E. W. Kerns, sales manager; A. D. Gillespie, Indiana representative; C. A. Kuhlman, Michigan and Wisconsin; Louis Schwab, Illinois.

Monarch Telephone Manufacturing Company, Chicago—Ernest E. Yaxley, president and general manager; J. C. Hubacher, secretary; W. H. Trimm, sales manager; A. J. Carter, Iowa representative; T. L. Dunlap, Missouri and Kansas; R. C. Stone, Indiana; L. M. Hearns, William Krauter.

Moon Manufacturing Company, Chicago—H. E. Procunier, president and manager; W. L. Procunier, superintendent; F. H. Wood, sales manager.

Morgan & Wright, Chicago—H. S. Hilton, sales manager.

National Carbon Company, Cleveland, Ohio—W. H. Moffett, assistant salesman; A. V. Warren, Chicago salesman.

Nicholas Telephone Selector Company, Rochester, New York—C. E. Nicholas, general manager.

North Electric Company, Cleveland, Ohio—Charles H. North, president; David Gibson, advertising manager; C. D. Boyd, Indiana and Michigan representative; George B. Pratt, Ohio.

Nungesser Electric Battery Company, Cleveland, Ohio—Thomas Greer.

Pearne-Krum Company, Chicago—A. G. Gunther.

Peirce Specialty Company, Chicago—Carl L. Peirce, president.

Raber & Watson (Cedar Poles), Chicago—A. D. Watson, M. E. Brown.

Rock Island Battery Company, Rock Island, Illinois—M. A. Loeb, general manager; Louis Loeb; George W. Conover & Company.

Standard Underground Cable Company, New York—J. R. Wiley, western sales manager, Chicago; T. E. Hughes, southeastern sales manager, Philadelphia; E. J. Pietzcker, southwestern sales manager, St. Louis; W. M. Rogers, J. E. O'Neill, Chicago.

Sterling Electric Company, Lafayette, Indiana—W. E. Doolittle, president; W. R. Coffroth, secretary-treasurer; George Metcalfe, advertising manager; S. B. Fowler, electrical engineer; H. T. Doolittle, purchasing agent; G. S. Montefort, western representative; E. S. Shelby, sales manager; E. C. Clay, H. W. Mower, salesmen.

Stromberg-Carlson Telephone Manufacturing Company, Rochester, New York—J. P. Cracraft, general manager Chicago office; A. O. Stigberg, shop superintendent; E. A. Reinke, sales engineer; C. W. Stiger, general sales manager; E. C. Lewis, office salesman; Don C. Gould, Nebraska, Colorado and South Dakota representative; E. P. Schafer, Indiana; William Bowen, Iowa; Paul D. Meyer, Illinois.

Swedish-American Telephone Company, Chicago—E. B. Overshiner, president; A. V. Overshiner; C. H. Macklin, secretary; F. E. Seeley, J. A. Russell, George Remington, traveling representatives.

T. & A. Selective Call Company, Geneseo, Illinois—E. A. Terpening.

Telephone Magazine Publishing Company, Chicago—W. H. Graffis, advertising manager.

Telephony Publishing Company, Chicago—H. B. McMeal, president; E. J. Mock, business manager; H. E. Babcock, editor.

Tornquist Electric Manufacturing Company, Davenport, Iowa—J. A. Tornquist

Turner Brass Works, Chicago—P. J. Hertz, traveling representative.

Vought-Berger Company, La Crosse, Wisconsin—C. D. Enochs, superintendent and manager; J. G. Ball, representative northwestern territory.

Waterbury & Company, New York—John B. Adams, manager cable department; T. L. Hiles, sales department Chicago house.

Western Telephone Manufacturing Company, Chicago—C. L. Johnson, treasurer; G. H. Johnson, secretary; W. G. Peacock, engineer; C. K. Noyes, salesman.

Williams Telephone and Supply Company, Cleveland—C. W. Hunt, secretary-treasurer; W. R. Horning, engineer; C. P. Mebana, traveling salesman.

LECTURES ON ELECTRICITY IN 1751.

At the Boston Art Club an extensive collection of Americana belonging to R. Henry W. Dwight, Esq., president of the Sons of the Revolution, forms an exhibition of particular interests to persons of antiquarian tastes.

Among these is an interesting broadside, which gives a summary of two lectures on electricity by Ebenezer Kinnersley delivered in Faneuil Hall in September, 1751—the first lectures probably ever delivered on the then new subject of electricity. Kinnersley was an Englishman, who was head master in English literature in the College of Philadelphia, from 1753 to 1773, a student of science, who made a number of discoveries in electricity and invented a number of quaint electrical devices. He and Franklin were on intimate terms, and were closely associated in their electrical experiments. Kinnersley has been erroneously cited as an anticipator of Oersted's discovery of the deflection of a magnetic needle by an electric current. The former's experiment, however, was purely electrostatic. In the summary of these two lectures, among other things, it states that electricity "is an extremely subtile fluid."

"That it doth not take up any perceptible time in passing through large portions of space.

"That it is mixed with the substance of all other fluids and solids of our globe.

"That our bodies at all times contain enough of it to set a house on fire."

He exhibits:

"An artificial spider animated by the electric fire so as to act like a live one.

"A shower of sand which rises again as fast as it falls.

"A curious machine, acting by means of the electric fire, and playing a variety of tunes on eight musical bells."

This broadside of 1751 appears to antedate any other similar notice of electrical experiments.

INDEPENDENT COMPANY FOR FRISCO.

The Home Telephone Company of San Francisco has filed articles of incorporation. The capital stock is $10,000,000 divided into 100,000 shares. The directors are: Henry T. Scott, Vanderlynn Stow, John J. Mahony, Mark L. Gerstle and Richard M. Hotaling of San Francisco, J. S. Torrance of Pasadena, and Thomas W. Phillips of Los Angeles. The purpose of the company, as described in the articles of incorporation, is to construct and operate a telephone system in San Francisco. A franchise will be asked from the Board of Supervisors.

Each of the directors has subscribed for $10,000 of stock, or $70,000 in all. The length of the proposed lines is 690 miles. The company intends to use the automatic system. Mark L. Gerstle, attorney for the new company, says that the distinctive features of the proposed system are that there will be no party lines, no switching charges, that the wires will all be laid in conduits and that the rates will be flat for all users, while conversation will be unlimited. He also says that the company has all the money that it needs. No one will be asked to pay anything for the service until 7,000 subscribers are actually served. The original plan is to extend the conduits as far as Central avenue and to the Potrero, with extensions as they may be required.

Digest of Telephone Patents

Conducted by Edward E. Clement

789,716—H. P. Clausen. Telephone Transmitter.

This is a transmitter with its diaphragm recessed to form a forwardly projecting chamber, the electrodes and containing cup lying in the chamber, the principle of design aside from this being the same as in the solid back. The main diaphragm *C* is formed with its central portion forwardly chambered, at *c'*, and the resistance button is carried by a so-called intermediate or supporting diaphragm, *H*, lying flush with the body of the main diaphragm and riveted to it all round. The resistance button of the chamber itself comprises a ring *G* with two caps and two mica supplemental diaphragms carrying the front and back electrodes. The front electrode is secured to the deflected part of the main diaphragm, and the rear electrode has a stud lying in the bridge *D* as usual.

The main feature to be observed as of interest in this instrument is the elimination of the weight of the resistance button or container from the vibrating portion of the main diaphragm. Only the front electrode is bodily carried on the central portion of the main diaphragm, and as the rear electrode is secured in the bridge, and the ring of the pill-box is carried by the intermediate diaphragm, a considerable increase in efficiency ought to result, especially as the supporting diaphragms are all resilient and act with the main diaphragm.

789,738—Dugald C. Jackson. Method of Propagating Wave-Forms.

This is a method supposed to accomplish in another way what Dr. Pupin has accomplished with his coils inserted at intervals in telephone lines. The Pupin method, it will be recalled, contemplates the production of an average effect or approximation, coils being inserted at certain frequent intervals in the line so as to give a certain relation between inductance and capacity and resistance per unit interval, the intervals being sufficiently short so that they give a good approximation to a continuous effect. Professor Jackson, on the other hand, seeks to balance the capacity of the circuit by an inductance source continuously introduced along the entire length of the line or cable. He states the theory, some mathematical demonstration, and then proposes as the practical means for carrying it out, to wind his conductors in the form of copper ribbon in a spiral having for a submarine type of cable seventeen turns per yard or about thirty thousand per mile. The core, if any be used, is formed of finely divided soft wires, divided to avoid eddy currents, and soft to avoid losses by hysteresis.

The statement throughout the case does not show that any practical embodiment of the invention was ever attempted, and the results claimed to be produced are questioned by some experts. It is going to be an expensive proposition to demonstrate a theory like this, and unless it is both demonstrated and shown to be different from any similar theories proposed from time to time, the claims, which are rather broad, will be without value. The present patent covers the method alone, but reference is made to a companion application, S. No. 76,247, filed September 23, 1901, which presumably contains the claims for the apparatus.

789,748—C. T. Mason. Code Signalling Telephone.

This is, as its name would indicate, a telephone for party lines, with means for automatically sending a code signal or ring to any desired party on its line. In other words, instead of having to count long and short rings as they are sent, the user of this device has only to set a plug into the proper jack corresponding to the party he wishes to ring, and then after pressing the ringing button, to turn his generator crank. The signal is sent in impulses by means of a toothed wheel acting on a pen of the line wanted, and turned by the generator gear-wheel. The illustration is apparent of the door of the well known "compact" type of wall telephone, the selective apparatus being attached to the inside of the door so as to engage the generator gear when the door is shut. A set of springs, one for each party on the line, is arranged across the door, their ends all resting on a strip of metal, *g*, above which is a shaft *h* carrying the code-wheels, *i*, one for each spring, and each with teeth arranged to correspond to the number of its party. Each spring has a jack, and a plug is provided by which any spring can be crossed with the generator and line connections. The operative coupling of the code wheels and the generator gear is through a star wheel on the selector shaft, which has a mutilated space normally resting in position to pass the pin on the gear, but which can be pushed over to start a code ring by the push button referred to. The *modus operandi* in making a code ring is as follows: The plug is first inserted in the proper jack, the push button is shoved in to start the star wheel, and the generator crank is turned. The latter then supplies the current to the code wheel which has been cut in, while also turning the latter to make and break the ringing circuit in proper intervals. After calling the plug is put in a short-circuiting jack by which the signaling devices are normally cut out.

789,830—N. A. Zetterlund. Cable Hanger.

This is a cable clip of efficient design. A solid side strip oppositely curved at top and bottom is provided, marked *7* in the cut, to which two half bracelets are hinged, the upper one going over the traveler wire, the lower one taking in the cable. When the two are closed together on the rigid half of the clip, the point of the upper bracelet, which is formed into a hook *6*, is passed through an eye in the body *7*, and also through an eye in the upper end of the lower bracelet, so as to held the whole clip shut. The weight of the cable tends to hold the hook in the eyes, but the pressure of a thumb it is said will release it if properly exerted.

187,925—C. W. Mahon. Coin-Controlled Telephone System.

This is a pay-station scheme for automatic substations. The circuit shown is the standard circuit of the Strowger or Automatic Electric systems, in which groups of impulses over the vertical side of line are followed each by a single impulse over the rotary side of line, to work the switches and the side switches in proper sequence. I should suppose the device would be quite as applicable to manual circuits, the scheme in itself being both simple and apparently efficient. The whole idea may be told in a few words. When the subscriber calls, almost the first thing that happens is the energization by current from central of a relay, *21*, which puts a dead short-circuit around the secondary of the induction coil so the transmitter is out of business, and shunts the receiver through about seven ohms, non-inductive. This will permit the incoming answer of the correspondent to be heard feebly, but will effectively take

up any current due to attempted use of the receiver as a transmitter to beat the device. In order to break the shunts, a coin must be deposited, which, passing down the chute *36*, closes the ground tap *34-35* from line wire *18* through release magnet *27*. The magnet *27* trips the dog *26* which holds the shunt contacts *23-24-25* together, and the circuit is clear for talk.

789,985—H. Manring. Telephone Cut-Off.

This is a cut-off switch for party lines. It comprises an auxiliary lever switch lying under and operated in one direction by the main hook-switch. This is shown at *5* in the cut, with a handle *7*. Suppose a station on the left calls, and the subscriber at the station shown answers. As he removes the receiver *1* from the hoop *12*, the latter rises and breaks the through line *17* to *27*, leaving the local telephone connected through to the right by the following path: ground, receiver *1*, secondary and switchhook *12*, lever *5*, contact *14* on which it normally rests, and right hand wire *17*. If the calling station is not on the right hand end of the main line, but on the left, which is thus cut off when the hook goes up, the subscriber shown gets no answer, so he throws up the lever *5* by pulling down the handle *7*. This connects the hook *12* through the lever *5* to the left hand wire *17*. When the receiver is finally hung up the switch is automatically restored to the position shown.

790,103—D. W. Campbell. Combined Annunciator and Jack for Telephones.

This is a unit of the self-restoring type, in which the plug throws up the drop when it is inserted. The magnet is tubular, secured as usual at its front end, to a plate *18* carrying the drop parts and mechanism, the armature pivoted at the rear end of the magnet and the jack springs fastened on the sides of the tubular magnet shell and extending forwardly in front of the end of the magnet. The jack thimble lies in front of the magnet, and between the two is the drop shutter formed up out of a blank of sheet metal with a lip on its outer end and a bent down pivot end next the magnet. Slightly advanced from the pivot end is a spring arm *38a* lying in the path of the plug, with a piece of insulation *41* on which the plug tip bears when it is inserted, to lift and push back the drop. From the front the shutter shows through a small slot into which it drops its front lip when released by the magnet.

This patent is assigned to the Vought-Berger Company.

790,241—W. Wright. Antiseptic Mouthpiece for Telephones and the Like.

This is simply a double mouthpiece, one shell within the other, and absorbent material saturated with antiseptic material lying between them. The inner shell has ribs that keep the absorbent material away from its surface, and openings between the ribs which permit a free circulation of air. Both shells may be of rubber or the inner one may be of paper, etc.

790,428—H. M. Gail. Telephone Transmitter.

This is a double transmitter of the Wilhelm type, having two complete microphone chambers *H* and *J* set on edge, each formed by a felt ring with two carbon electrodes in it; each chamber has its diaphragm of aluminum or other metal, these diaphragms facing each other and having a common mouthpiece with two openings opposite the respective diaphragms. The whole device is hung on pintles or trunions in the axis of the carbon chambers, and one side weighted so it will swing with the mouthpiece upwardly when not in use. When to be used, the instrument must be turned down, which is supposed to shake up the granules so they will not get packed. The circuit is through the trunions and their supporting arms, which are insulated from each other.

790,548—G. F. Atwood. Annunciator.

This is a combined lamp and push button, which I can conceive might be useful in several places. The patent belongs to the Western Electric Company, and in the complete scheme is employed a locking magnet devised by Henry M. Crane and also presumably belonging to the Western Electric. The idea is to push a button to close a lamp-circuit, the circuit remaining locked, closed through a magnet included and energized at that time. The lamp lights and stays lighted. To restore to normal, the operator presses the lamp itself, or its bull's-eye, and the lamp structure slides in its tube to lift a back contact off its resting anvil and break the circuit. The sliding part of the jack is shown at *c* in the cut, and the contact that is thus broken, at *c-g*. Upon thus breaking the circuit, the locking magnet lets go, and the condition is normal.

790,550—H. M. Bascom. Party-Line Telephone.

This is a party line selective scheme using biassed ringers with oppositely wound legs, bridged directly across the line and with the ground between their legs. As the four ringers on the line are all thus bridged they will take current in ringing out, but two of them are polarized in a direction opposite to the other two, and hence they will be differentiated. Current over number *1* side of line, for instance, of positive direction, will pass through one winding on each ringer. Being oppositely polarized and having their biassing springs set on opposite sides, the armatures are oppositely tilted, so only two are found with their armatures off the pole, which is affected by the current sent out. This intermittent current produces a north pole (say), in one leg of one of the magnets, and since they are oppositely wound, a south pole in the other. Assuming the armatures to be normally polarized to north polarity, the second bell will thus be rung.

It is not explained how the repulsive effect of like poles is avoided, but bridged generators are shown for calling in and clearing out, the ringers being obviously unaffected thereby.

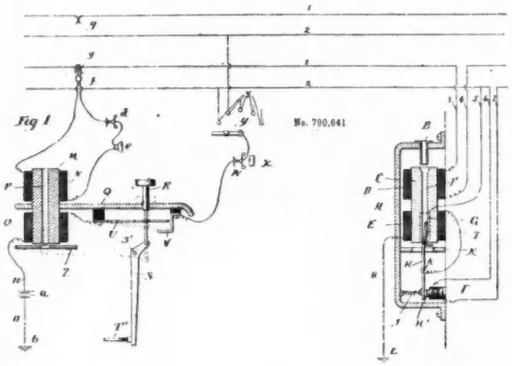
The patent is assigned to John B. Hemenway of New York.

790,603—P. J. Tariel. Microphone.

M. Paul Julien Tariel of Issy-les Molineaux, France, 19 Rue Kleber, in the Department of the Seine. Another foreign gentleman come over after American money—figuratively speaking. If the fellows who come after our girls would only leave something as useful as a telephone transmitter behind them we might not put up such a howl after the money, but there's the rub—they don't. M. Tariel is a Doctor of Medicine, and a scientific man, and his invention is intended to improve transmission and prevent packing. The mechanism of the transmitter he proposes is simple, comprising a ring with a circular plate in it with holes or pockets for the granular material. This is in the form of very thin plates broken up, each less than 2 mm. in thickness. The doctor claims that these plates or scales pile up and will not pack, while the contact surface is greatly augmented in toto.

790,641—I. Kitsee. Coin-Controlled Apparatus.

In 1898 William D. Gherky of Philadelphia, working with the writer, presented a Hughes induction balance for the use of operators to determine the value of coins deposited in pay-station boxes. It was concluded to be too easily deranged for much practical use, but Dr. Kitsee here presents the same idea again and has obtained some claims for it. He does not call it a Hughes induction balance and there is nothing to indicate that the Patent Office consid-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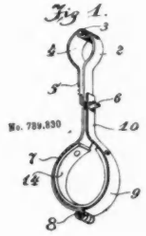
No. 790,641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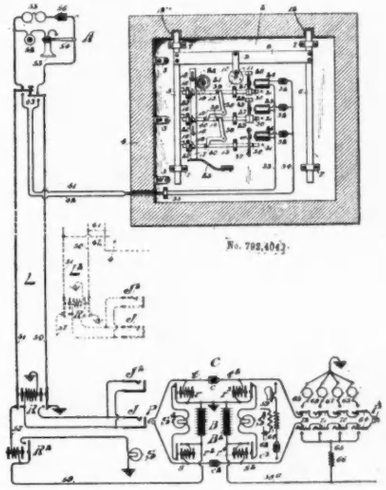
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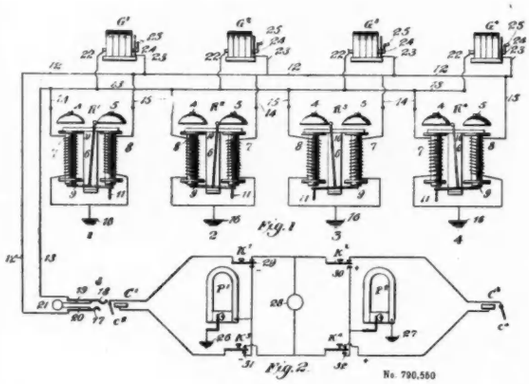
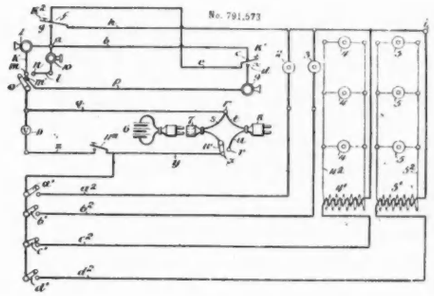


Fig. 1
Fig. 2
No. 790,560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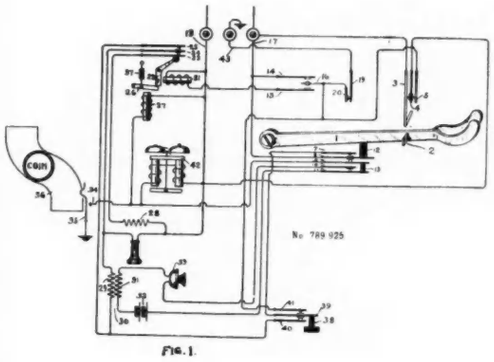
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Fig. 1.

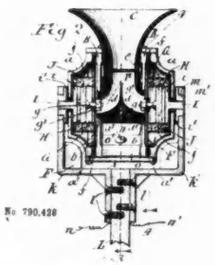
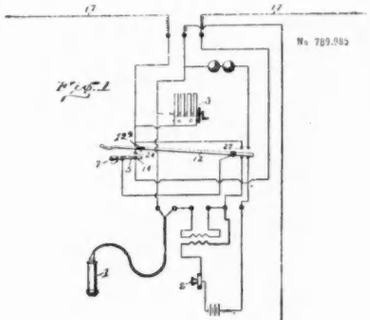
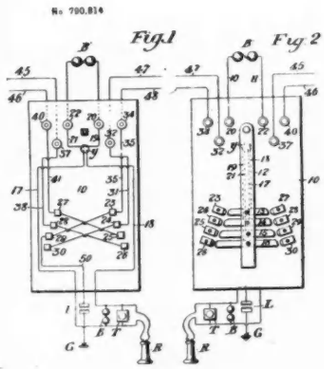
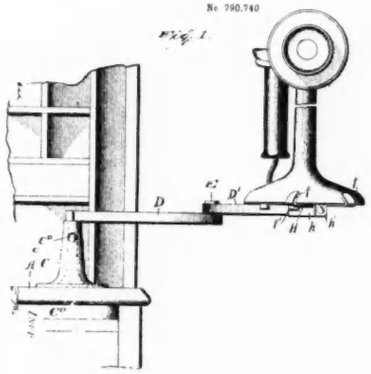
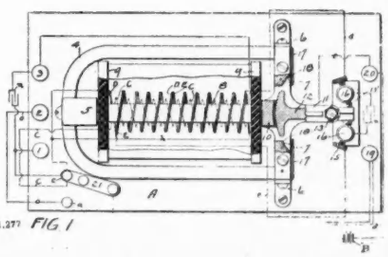


Fig 2
No. 790,438


No. 789,992
Fig. 1


No. 790,814
Fig 1
Fig 2


No. 790,740
Fig. 1.


No. 791,277
FIG. 1

ered the many applications of that balance before granting the patent.

The mechanism and operation are simple. At the substation a wooden core carries two coils and is slotted to receive the coin. At central the operator has two similar coils and a slotted core into which she can insert any one of several coins. An interrupter, which the doctor calls a "sound producer," is included in circuit at central. When a call is made and a coin has been inserted, the operator swings in her coin corresponding to the one that should have been deposited, and listens. If she hears a sound, of course there is lack of balance because the coins are different, i. e., the wrong piece has been put in at the substation. If there is silence, or substantially silence, the operator knows the same coin has been put in at both ends, and swings current to tilt a lever and throw the coin in the till at the substation. By energizing a subsidiary magnet acting upon the upper hinged part of the same lever the coin may be thrown out through a return chute to the depositor.

790,684—J. Harveston and J. O. Mudgett. Telephone Call Attachment.

This is a code transmitter for party-line service, intended principally for the use of the operators at central. It comprises a constantly driven shaft, *3*, carrying a friction roll, and a disk carrying the code wheel or wheels with teeth to make contact with a spring and send the impulses required. The disk normally rests with a notch opposite the friction roll, but can be turned by a push button far enough for the edge of the disk to come against the friction roll, when the latter will turn it one revolution, or until the roll again comes into the notch. This at central of course automatically puts generator on the line and the operator therefore has nothing to do but to press the appropriate button.

790,740—E. Ocumpaugh. Desk Attachment for Portable Telephones.

This is a convenient form of desk bracket. A standard *C* is mounted on the desk and carries the bracket arm *D-D'*, jointed in the middle and with a fixed pair of jaws fastened to it to receive the base of the telephone. A sliding pair of jaws, like the clamps of club-skates, come along the arm, being held and adjusted by a screw tapped into the outer end thereof as shown at *h'*.

The patent is assigned to the Defiance Machine Company of Rochester, New York.

790,812—G. F. Archer. Electric Telephone Switch.

This is an intercommunicating switch with a supposedly novel detent device for the selecting buttons when they are pushed in. The telephone circuit has nothing to do with the invention, the idea being limited to the mechanical features of the detent. This comprises a slide with hooks for the buttons (each of which, of course, controls suitable contacts when pushed in), each hook having a cam face so that when any button is depressed all the others are released. A connection is provided with the telephone hook switch such that upon hanging up the receiver the entire slide is moved to release position.

The existence of any patentable novelty in this invention seems questionable, and it is in any case very small. The very same movement has not only been used in selective ringing keys and the like, but it has actually been used in a somewhat similar, if not the same, way for the same purpose.

790,814—C. V. Beaver. Multiple Switch for Telephones.

This is for a party line, and comprises a local telephone set, two separate line circuits or portions of the through circuit passing through the local station, an auxiliary signal or extension bell, and a switch, which is shown in the left of the cut in face view and on the right in rear view, this adapted to connect the local set with either extension or line, and to simultaneously connect the other line with the extension bell. The local station is thus always in condition to receive a call from either direction.

790,854—J. G. Roberts. Telephone System.

This patent is assigned to the Kellogg Switchboard & Supply Company, the application having been filed May 8, 1902. The invention relates to automatic means for cutting in and cutting out the operator's telephone set and generator, and some other matters. In accordance with the general practice of the Kellogg attorneys the claims are greatly padded, there being 36 claims in all, nearly the entire number relating to the so-called ringer machine. Briefly stated, a relay is associated with each end of the cord-circuit, that associated with the answering end connecting the operator's telephone when the call is answered, and that associated with the calling end being energized to cut off the head set when the connection is fully established with the wanted line; the energizing of the calling supervisory relay also closing the circuit of a magnet which controls a power-driven ringing mechanism, wherein a revolving cam makes and breaks connection alternately between the ringing generator circuit and the called line. This periodic ringing is kept up until a stop carried by one of the wheels closes a grounding contact, and opens the circuit of the controlling magnet, finally permitting the mechanism to come to rest. If the called subscriber answers during the time the ringing is going on, the generator and ringing machine are immediately taken off, and the supervisory signal retired.

The line-relay is cut off in the jack, and itself controls the circuit of the cut-off relay, which conversely controls the circuit of the line-relay.

Mr. Roberts' circuits may serve as fairly good bases for paper claims, but they hardly convey the impression of that highly efficient simplicity which characterizes the highest type of design. The cut given herewith is the simplest one in the patent, and shows really nothing of the alleged invention.

790,945—W. L. Wilhelm. Telephone Transmitter.

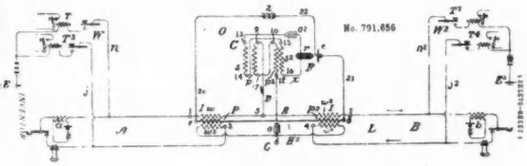
This is a microphone transmitter of the Wilhelm double diaphragm pattern, the diaphragms being on the opposite faces of the containing frame, and having the sound brought to them by branch curved tubes leading from a common mouthpiece at one side. In the frame is a rigid middle support or plate, carrying the fixed electrodes on its opposite faces, screwed together. Around each electrode is a felt or fiber ring, upon which lies the carbon diaphragm, with a retaining ring screwed down upon it.

790,952—J. M. Carrere. Telephone Mouthpiece Protector.

This is a cover for a mouthpiece comprising a circular disc of paper laid flat on the end of the mouthpiece, with a metal ring upon it having four clips snapped over the edges to hold the paper in place.

790,966—G. W. Lorimer. Indicator for Signal Transmitters.

This is a subscriber's sender for automatic telephone systems, in which the numbers are transmitted by makes and breaks whose numbers are determined by the adjustment of vertically sliding buttons. Two features are presented. By one smoothness of operation is insured, the contact spring being made with its bend at an angle, so that it will not stick between the teeth. The other feature is shown in the cut herewith, consisting in the attachment to the side of each knob or button of a frame which slides over the numbers as the button is set, each number appearing in the frame successively, and indicating that the corresponding number of impulses will then be transmitted.



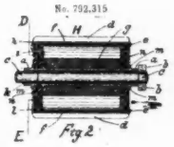


Fig. 3.

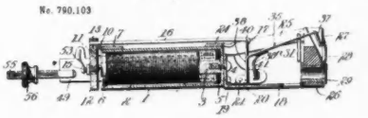
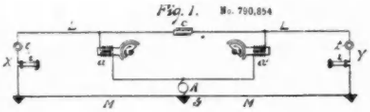
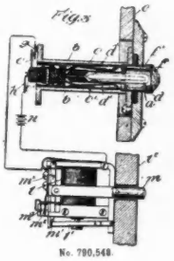


Fig. 1. No. 790.854





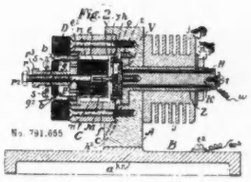


Fig. 2.

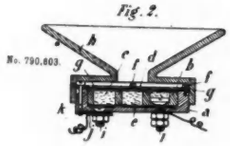
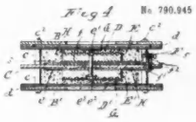
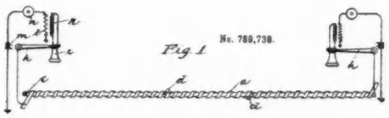


Fig. 4 No. 790.945





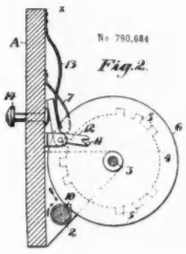
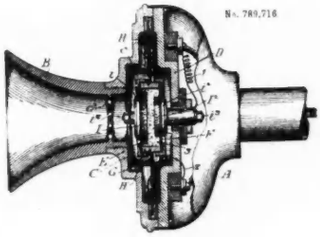
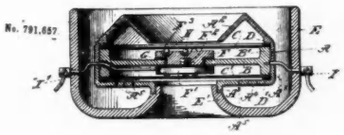


Fig. 1





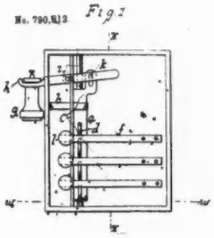


Fig. 1.

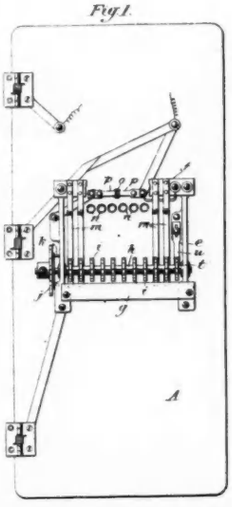
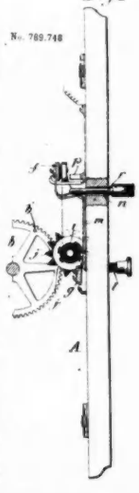
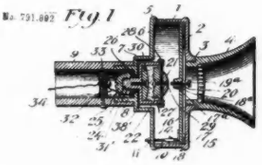


Fig. 2





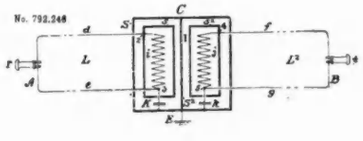
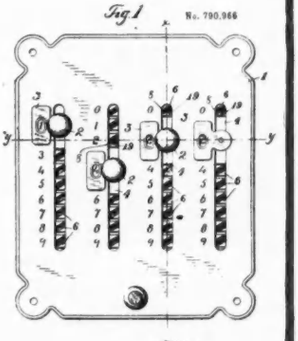


Fig. 1



791,277—J. C. F. Malthaner. Ringing Generator.

This is stated to be an improvement on the prior device patented by Mr. Malthaner February 17, 1903, No. 720,595. It has the appearance of a thoroughly commercial article, of pleasing and efficient design. It is pleasing because there is no waste of space, there are no superfluous parts, the arc of movement of the vibrator is small but sufficient for its purpose, and the general arrangement is symmetrical; it should be efficient because both the magnetic and electric circuits are well disposed and properly designed, and the employment of a transformer in this connection gives control of the voltage.

The device is really a pole changer for taking battery or other direct current and giving out alternating or pulsating current for ringing. Such devices have found a wide field of usefulness which will expand as time goes on. A permanent magnet is secured on brackets which hold it horizontally on a base, *A*. In this horseshoe magnet is mounted a core for a transformer or induction coil having two oppositely wound primaries and a secondary. The soft iron core and the permanent magnet form a magnetic circuit, broken at the front end by two air gaps between the core end and the two magnet pole pieces. Across these air gaps a pivoted armature of soft iron swings on a pivot, and as it swings it moves a spring contact back and forth between the fixed contacts *15* and *15'*, constituting the terminals of the primaries. The arrangement is such that as the armature is drawn over in one direction it closes the circuit of the proper primary to reverse the polarity of the core and so reverse the swing of the armature, which is thus alternately attracted to and repelled from the respective poles of the permanent magnet and caused to oscillate rapidly. Current for ringing is taken off the posts *1-2-3*, and a condenser is used as usual to prevent sparking.

791,573—H. G. Pape. Audiphone Instruction Apparatus or Set.

This is a development of one of the schemes now in use whereby the telephone is the medium of communication between a teacher and deaf pupils. These schemes have been widely advertised, and by many possibly classed as fakes, but nevertheless quite serious work is being done and good results are being attained. Of course where the deafness is complete, as where the auditory nerve is affected, or the small bones of the middle ear are absolutely incapable of movement, no method would produce results, but in many cases, especially of partial congenital deafness, in deaf mutes, excellent results can be attained in instructing one or more pupils in this way.

The presentation in this patent is of a convenient arrangement of wiring, there being no particular novelty in the apparatus or even in the circuits. A transmitter and receiver are provided for the teacher, and a number of each for the pupils, with a storage battery for supplying them all in common, plugs and switches for shifting connections of the instruments, and recharging the battery, etc. A sample combination in the claims is this: A transmitter and a receiver for the pupil, and a transmitter and receiver for the teacher, with a key whereby the pupil can cut out the teacher's transmitter and cut in his own, and vice versa. This is not the language, but the substance. The various arrangements possible are obvious in development after this statement.

791,655—H. E. Shreeve. Telephone Current Reinforcer or Relay.

This patent is assigned to the American Telephone and Telegraph Company, of New York, erstwhile yclept "the Bell." If rumor lies not, then the invention is regarded by its owners as of importance.

The instrument is the usual combination of a receiving device which will respond to incoming impulses, and a resistance varying or transmitting device which will act in accordance with the effect of such impulses in the receiving device to transmit corresponding impulses or waves over a second circuit, or to reinforce current waves in the same circuit. In some respects the inventor has reverted to types of the long ago. Thus, in the instrument described a double coil is provided, having a fixed semi-core *p*, which is magnetized to form the initial field by battery current in one of the windings, the other winding being simply bridged across the talking circuit in which the repeater is to operate. The coil also has a movable core *f*, which is fastened to the central point of the diaphragm *v* of the granular microphone *V*, which is centrally mounted in a heavy block *A* supported on the standard *B*, and carrying also the insulating disc *D* which supports the receiving device. A heavy block *J* is secured on the back face of this block *A*, composed of a considerable mass of metal scored around to increase its surface. This acts as a radiator, to take up and dissipate by radiation the heat generated in the microphone chamber.

The circuit for repeating comprises either one or two primary windings, with two secondaries, each included in series in the talking circuit, these being placed at opposite sides of the bridge containing the energizing coil of the receiver.

791,656—H. E. Shreeve. Telephone Current Re-enforcer or Relay.

This is a companion case to the other just noted, and is stated to be specific where the other is generic. It has been found that the Shreeve device, when used on composite circuits, has been seriously affected and its working disturbed by telegraph and other foreign currents, and the present invention furnishes a means for straining out such foreign currents of relatively low frequency, while maintaining the device sufficiently sensitive for high frequency or voice currents. The importance of this will be appreciated when it is recalled that on all long lines where repeating would be desirable, the telephone companies operate telegraph circuits as an additional source of revenue.

The invention consists in the use of a special repeating coil of small mutual inductance, having a common core, shown as a ring, with its primary winding disposed or connected over the two halves of the core differentially or in magnetically opposing half windings, while the secondary is correspondingly arranged so that the currents induced in its halves shall coincide in direction. This coil is shown at *P*, P^2 in the figure herewith, *R* being the repeater, with receiving coil *r*, and transmitter *t*. The coil is inductively connected through the double wound repeating coil *C*, also balanced on a common core, across the line *H*, H^2. There is thus a repeating coil between the main circuit and the relay *R*, and a pair of balanced coils between the transmitter of the relay and the line. In operation, the telegraph impulses act upon a coil of the kind described so slowly as to permit the core to act as a whole, and thus it remains so far as such currents are concerned null or in a practically zero magnetic state; but with the incomparatively quicker telephonic current impulses, each portion of the core is acted upon individually or independently and by its own portion of the coil alone, thereby acting effectively, together with the primary coil portions upon the corresponding portions of the secondary winding, developing vigorous operating pulsations in the secondary as a whole.

I should state that in both of these cases, while the subject-matter is not startling in its novelty, it is highly interesting and excellently developed in the specifications. I cannot pretend to do justice to the matter in a few words, and would advise all interested to read the entire specifications. These cost only five cents each in postage, and I will be glad to send them to anyone requesting the same.

791,657—E. R. Snyder. Telephone Transmitter.

This is a double transmitter of the Clamond ball electrode type. A middle ring has a carbon block at its center, upon whose opposite faces, and in pits formed therein, conducting balls *H*. These are held in place by the two diaphragms secured on opposite faces by clamping rings *A, A'*, both having openings at their centers for the passage of sound. A resonator *E* is secured to one ring and surrounds the whole transmitter. The face plate A^5 is perforated so that sounds uttered into either mouthpiece opening will pass freely to both diaphragms.

A half interest in this patent is assigned to Rudolph Lenk, of Brooklyn, New York, Mr. Snyder himself residing in New York city.

791,892—M. J. Fletcher. Telephone Transmitter.

Mr. Fletcher is from San Antonio, Texas. He says a transmitter ought to be so constructed that it can be taken apart by anybody without any special tools and without injuring it. His transmitter has a cup, *27*, of the usual solid back type, containing the front and back electrodes, and with its stud secured in the back half of the shell of the instrument. The front electrode has no stud, being operated through a threaded and adjustable stud in the diaphragm, which merely makes contact with it. When the transmitter is put in place in the support the cap nut *25* of the rear electrode stud makes contact with a pair of springs *32*, forming terminals of the primary circuit. The return is made through the shell and arm. The two halves of the shell are secured together by bolts *10*, whose heads also secure damper springs *17* against the diaphragm.

792,248—G. A. Campbell. Induction Coil.

In order to maintain the balance of a telephone line, many expedients have been resorted to, but in some cases even the expedient has proved a source of trouble. Thus, a repeating coil between a metallic and a grounding circuit may and sometimes does unbalance by reason of an unsymmetrical distribution of the resistance, inductance, and capacity of its windings.

The present invention aims to secure a perfect balance in repeating coil by providing the coil and its several windings (or any induction coil or transformer for that matter) with conducting shields, whereby the windings may be effectually screened or shielded from one another, and both or the coil as a whole from any external source of disturbance.

In the cut herewith the repeating coil is shown provided with three conducting shields *s, s²*, and *S*, and two condensers *K* and *k*. The shield *s* covers winding *i*, and is conductively connected with the outer terminal thereof at *2*, being thereby connected to circuit *L*. The shield s^2 is similarly arranged with respect to the winding *j*, while around both is an outer shield *S*, grounded at *E* and having a middle partition. Condenser *K* is connected between shield *S* and terminal *3* of winding *i* to balance the capacity between shield *S* and shield *s*, and condenser *k* is introduced to balance in the same way the capacity between shields s^2 and *S*.

Figures of a working form are given, a closed iron wire or laminated core being employed, and tin-foil between the windings for the shield. The patent is assigned to the American Telephone & Telegraph Company of New York.

792,315—F. B. Cook. Self-Soldering Heat-Coil.

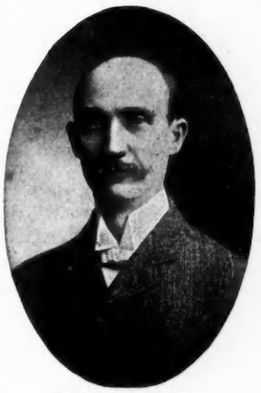
Another of Mr. Cook's heat-coils. This is an improvement on the form shown in patent No. 776,218, November 29, 1904. It comprises a central pin having a button head at one end and soldered in a tube, upon which the heating coil is wound between insulating heads which are secured on the tube so they will not turn. A corrugated or toothed metal shell surrounds the spool-heads and winding, and is secured to the heads. The device is mounted in a spring clip, the button-head lying in a slot and preventing the pin from turning. The companion spring of the set engages the teeth of the jacket on the spool, and hence is held in position until an undue accession of heat in the coil melts the solder and permits the spool and tube to be turned upon the pin until the spring-contact is broken, when the device cools and the pin resolders.

792,404—W. W. Dean. System for Unlocking Safes or the Like.

This patent is assigned to the Consolidated Fire Alarm Company of New York. The idea is to give a protective service in connection with telephone lines. The central office is provided with several sources of current corresponding to those usually employed in selective party-line ringing. At the substation a safe or vault is provided with a system of bolts held locked by a series of independently acting slide-bars, each controlled by a separate magnet, all the magnets bridged with condensers across a branch circuit *41-42* leading to a key by which it can be connected to a telephone line *L*. At a given time agreed upon the subscriber's key is depressed and the central office operator puts on proper currents in succession to select and operate the magnets which in proper sequence will act to withdraw the slide-bars and permit the opening of the safe.

DEATH OF E. E. NAUGLE.

The many friends in telephone circles of E. E. Naugle, president of the E. E. Naugle Tie Company of Chicago, will be deeply shocked and grieved to learn of his death, which occurred in the wreck of the ill-fated Twentieth Century Flyer of the Lake Shore road, at Mentor, Ohio, Thursday, June 22. Mr. Naugle was well and favorably known in his particular field, and especially so among the cedar interests. His firm having furnished many of the big Independent telephone companies with poles, he had a wide acquaintance among the telephone fraternity and was highly esteemed. He was a prominent member of the Northwestern Cedarmen's Association, a familiar figure at its annual conventions and was exceedingly popular with all who knew him. The painful nature of his untimely demise makes it all the more regrettable, and those who knew Mr. Naugle intimately, either in a business or social way, and were aware of his love of life and its enjoyment in the higher sense, can more readily understand how infinitely sad is the taking off in this shocking manner of a man of his nature in the prime of life. The death of Mr. Naugle is a distinct loss to the business interests of Chicago.



E. E. NAUGLE.

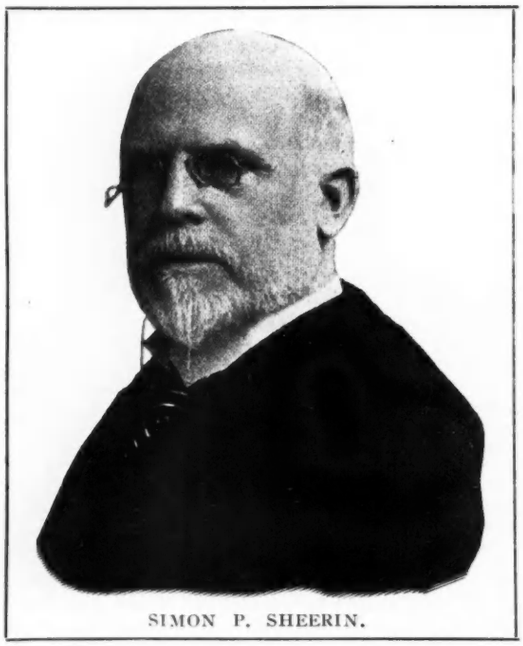
MUCH TELEPHONING IN KANSAS.

For the privilege of talking to each other over telephones during the year ending January 1, 1905, Kansans paid $518,180.81. This amount is the gross sum received by all of the telephone companies doing business in the state. The figures as compiled from reports made to the auditor of state do not show the earnings of the different companies, but they show that the companies did a good business.

DEATH OF SIMON P. SHEERIN.

The recent convention of the National-Interstate Telephone Association in Chicago was marked by a tragic and wholly unlooked for event that cast a gloom over the entire meeting and inexpressibly shocked those present—the sudden death of Simon P. Sheerin, one of the most widely known and influential men in Independent telephone circles, which occurred on the floor of the convention hall, at the Auditorium Hotel, during the initial session of the first day's proceedings, Tuesday, June 20.

Mr. Sheerin was president of the Indianapolis Telephone Company and the New Long-Distance Telephone Company, also an Indianapolis institution. In consequence of his prominence in the field he had been selected to respond to Mayor Dunne's address of welcome at the Chicago convention. The convention opened at 10 o'clock, with Col. J. D. Powers of Louisville, Kentucky, in the chair. Following the chairman's introductory remarks City Prosecutor



SIMON P. SHEERIN.

Taylor, for Mayor Dunne, delivered the welcoming address. Mr. Sheerin then took his place at the speaker's table, remarking that, unlike Mr. Taylor, he was unable to make a speech without notes, and asked the pardon of those present while he read his response. He had hardly begun his address when he remarked to the chairman that he felt ill and would have to stop. At the same moment he was seen to suddenly step backward and close his eyes, falling heavily to the floor in an unconscious condition. Physicians were summoned, who stated that Mr. Sheerin had been seized with an attack of heart disease, and that his death had been coincident with his fall to the floor.

Mr. Sheerin, a short time before his collapse, had remarked that he was not feeling well and that he wished the ordeal of responding to Mr. Taylor were finished. The convention was thrown into a state of intense excitement by the sad and deplorable occurrence, and immediately took an adjournment until 3 p. m., at which time resolutions of sympathy and esteem were passed by the convention, and a committee appointed to accompany the remains to Indianapolis.

Mr. Sheerin was one of the most prominent men identified with the Independent movement, and his heart and soul were in the work. He was a leader in the full sense of the word, and was always one of the prime movers in convention matters, state and national. To him, perhaps, more than any other man, is due credit for the great progress that has been made in Indiana by the Independent interests. He was aggressive, earnest, and, above all, loyal to the Independent cause. In his death Independent telephony has sustained a genuine loss, and wherever he was known naught but the deepest regret is felt at his passing. He was a man of spotless integrity, generous impulses and high motives—a truly good citizen, who fulfilled every trust reposed in him, and who leaves as a legacy to his family and friends the priceless heritage of a good name.

Simon P. Sheerin, son of Thomas and Mary Sheerin, was born in Dublin, Ireland, February 14, 1846. His father was a manufacturer and an Irish revolutionist, and left Ireland for the United States in 1849, landing at New Orleans. Later the family located at Dayton, Ohio, where Simon obtained his early education in the public schools, supplemented by a course in a commercial college. He there worked in a blacksmith shop, and in 1866 moved to Logansport, Indiana, where he worked at his trade for four years. During this time he was a student of books and of affairs.

In 1878 he was elected recorder of Cass county, Indiana, and was re-elected in 1874. In 1875 he became the editor and part proprietor of the Logansport Pharos, one of the important democratic papers of Indiana. In 1880 he retired from the Pharos, and in 1882 was elected clerk of the Supreme court of Indiana, and declined a renomination in 1886 to engage in important private enterprises. He was a member of the state democratic executive committee in 1884, 1886 and 1888. The latter year, at the democratic national convention held in St. Louis, Mr. Sheerin was elected a member of the democratic national committee, and the same year in Washington was elected secretary of the national committee, and was re-elected a member and secretary of the committee in 1892 and was secretary of the democratic national convention in that year.

During recent years Mr. Sheerin had been identified with many large enterprises, notably those connected with natural gas and telephones. He was a member of the Indianapolis Board of Trade, Commercial club, German House and University club.

In 1883 Mr. Sheerin married Mary Agnes Doherty, daughter of Daniel E. Doherty of Louisville, Kentucky. There are eight children living, five girls and three boys. The three oldest girls attended school in Washington last winter and have just returned for the holidays. The oldest son, Thomas, who was with his father in Chicago and was present when his father was stricken, was graduated from Purdue University several weeks ago.

On account of ill health Mr. Sheerin, accompanied by his wife, made a tour of Europe last summer, returning in September. Since that time he had been closely confined by his numerous business interests and had labored incessantly, particularly during the past year, for their greater success. It is believed that too close application to business overtaxed his physical strength and brought on the attack which ended his life.

The funeral was held in Indianapolis on Friday, June 23, and was one of the largest ever held in that city. The eulogies that were paid the memory of the dead and the countless other tributes to his life and works showed as nothing else could the high esteem in which he was universally held at home and abroad.

There is nothing particularly new or startling in the theoretical argument that the telephone is a natural monopoly, says the Nashville (Tenn.) News. Telephone competition means better service and lower rates for one thing. It also means that very many more people will use telephones, to the advantage of all. In many places where there has been competition there are now twice as many telephones as when there was no competition.

Combined Telephony and Telegraphy

SAMUEL G. McMEEN

PERHAPS the advantages of combined telephone and telegraph working on the same circuits can be shown more clearly in a picture than otherwise. Fig. 1 is intended to show what is at present possible in this direction. In this figure it will be seen that over a line of a single wire, using earth as a return, one telegraph and one telephone service may exist at the same time. Over a two-wire line, by one method of operation, one telegraph and one telephone service may be secured at the same time; and this may be accomplished in two different ways so far as the apparatus and principles are concerned.

By another method of working, a two-wire line may be made to furnish one telephone and two telegraph services at the same time. In all of these arrangements, under proper conditions, there is no interference between the two classes of service. The whole matter of superadding telegraph to telephone service on a one-wire line, or the reverse,

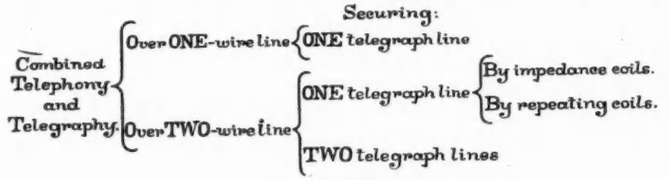


FIG. 1.

may be dismissed by saying that it is not yet shown to be possible to do both things over a single wire without reducing in some degree the quality of the telephone service; the principal commercial application of such a plan is to convert the existing grounded telegraph lines into combined ones, thus securing telephone service of some value, without serious interference with the simplicity and convenience of the telegraph srvice. This is accomplishd by the introduc-

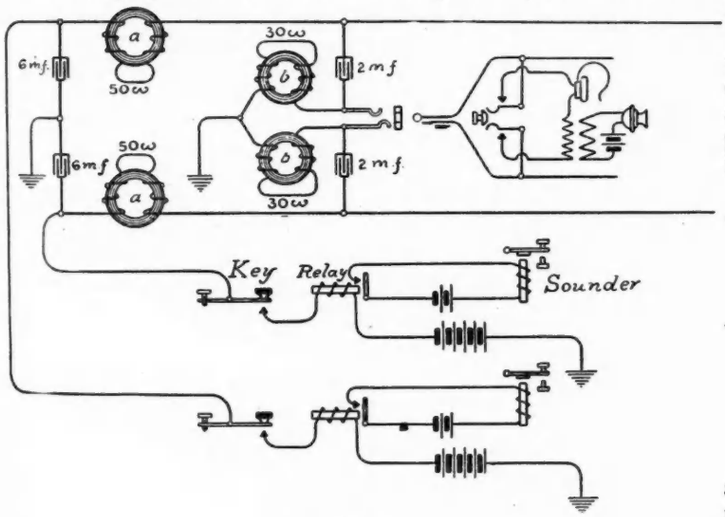


FIG. 2.

tion of certain rather delicate apparatus for signaling, of more than usually powerful transmitters, and of receivers of less than usual sensitiveness. A little thought will show that circuits specialized in this way cannot be connected to the standard telephone systems of cities, so that this form of combined working must be considered special, though valuable.

Combined working over two-wire or metallic circuit telephone lines, however, is free from this objection, and, indeed, from any other very serious ones. I shall try to show what and how important are the limitations which may be expected.

Any metallic circuit telephone line which is good enough

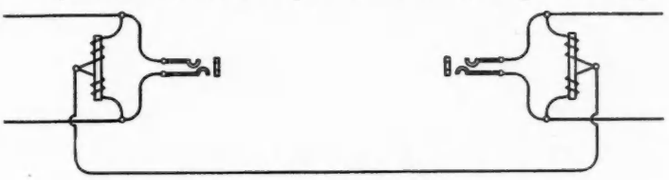


FIG. 3.

for quiet commercial telephone service, may be made to furnish one telegraph circuit by having impedance coils bridged across it, as shown in Fig. 2. These coils should contain turns enough to enable them to be bridged across the circuit with no greater reduction in telephone transmission than would be caused by bridging across a high impedance standard drop or ringer. The magnetic circuit may be open or closed; that is, the windings may be upon a straight bundle of iron wires, or upon a ring-shaped core. A tap is to be taken from the middle of the winding, or, which is equivalent, from the junction of two similar windings on the same core. This tap is carried to the telegraph apparatus and may be considered simply to be the end of the telegraph line. Any desired arrangement of telegraph apparatus may be added to the circuit thus secured, the only limitation being that the method of working should not involve high frequencies, such as are met in the Edison phonoplex or in any of the high speed systems of automatic telegraphy.

Should it be desired to build up a telegraph circuit longer than the available metallic circuit, or to carry the telegraph circuit over a route not already provided with a telephone circuit, the tap for the purpose may be taken from the telephone pair through an impedance coil and into another pair in a similar way. This arrangement is shown in Fig. 3.

If desired, a telegraph set may be inserted at such a point

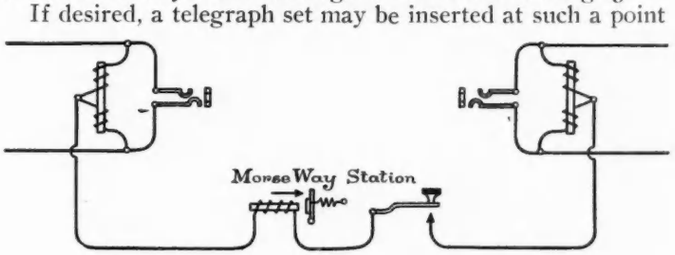


FIG. 4.

as this, where the telegraph line transfers from one pair to another. Fig. 4 shows this condition.

Should it be desired to insert a pay-station in a telegraph circuit at a point which is not a terminus of a telephone circuit, condensers may be inserted in each of the wires, impedance coils bridged beside them, and the Morse apparatus inserted in the bridge wire which thus emerges from the pair. This arrangement is shown in Fig. 5.

In all the foregoing plans involving the use of impedance coils, there exists the difficulty that in case the two telephone lines so equipped are switched together through a

Paper read at the National-Interstate Independent Telephone Convention, at Chicago.

toll board having no condensers or repeating coils in its cord circuits, the two sets of Morse apparatus will be connected together and confusion may result, quite as does when two telegraph lines become crossed. Inasmuch as condensers of two m. f. or greater capacity do not interfere with successful telephone transmission, cord circuits so equipped will be free from this fault. For the same reason the loop arrangement shown in Fig. 5 is free from any telephonic objection.

There is another fault in the impedance coil plan, in that ringing generators, suitable for local exchange line signaling, often require to have one terminal permanently grounded, or to have temporary grounds applied during the time signals are being rung upon party lines, grounded rural lines, or other circuits involving ground in any way. If the same source of ringing current is used for toll line signaling, a little thought will show that the telegraph outfit will frequently be disturbed by a series of dots, caused by ringing current passing to ground through the Morse relays.

A preventive for such a derangement is found in providing separate ringing apparatus for toll operators, or by securing the ringing current for these operators though special transformers.

Roughly speaking, the best conditions of operation with the impedance coil plan will be secured when, with a high resistance total Morse circuit, high resistance telegraph relays are used. It is not required that the resistance of the impedance coils be great, but only that their inductance and consequent choking due to voice currents be great.

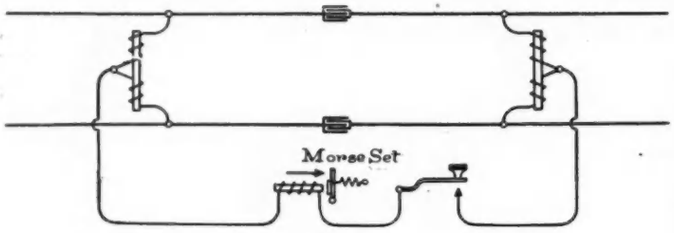


FIG. 5.

This is an immediate result of the iron core and the turns. For an expedient, a ringer may be used as such a choke coil, its two terminals being bridged across the telephone line, and a telegraph tap taken by extending the junction between the wires of the two spools. Such an arrangement, if the spools are at all nearly equal, will be quite successful. If a number of circuits are so treated, the ringers of the different circuits must not be stored close together with their cores parallel, or cross-talk between the circuits may result. This may be prevented by placing the adjacent ringers with their cores at right angles to each other.

It is obvious that a high impedance tubular drop having a middle terminal may also be used for such a telegraph tap, and in such a case the danger of cross-talk disappears, being prevented by the shield.

If such high impedance devices as ringers and drops are used for these taps, the Morse relays should be wound to high resistance, say 500 to 1,000 ohms.

By the use of repeating coils to be permanently inserted in the telephone line at the points where the telegraph tap is to be taken from the circuit, one Morse line may be secured from a two-wire circuit quite as has been described for the use of impedance coils. Fig. 6 illustrates how the tap is taken from the line side of the repeating coil. Coils may be secured in the market with arrangements made for taking out this tap. Connections to Morse apparatus are quite the same as are shown in Figs. 2 and 4. This arrangement has the advantage that no connections between telephone lines in the way of ordinary switching, nor any peculiarities of ringing apparatus, will affect the telegraph apparatus adversely. It has the disadvantage that the introduction of two repeating coils in a circuit causes a distinct loss in both voice and signal transmission, all the more marked when several lines so equipped are connected together. From the practical standpoint, this plan is not recommended for other than short lines, and then only under excellent conditions where freedom from interference is the thing most greatly to be desired.

The reason for non-interference between the telegraph

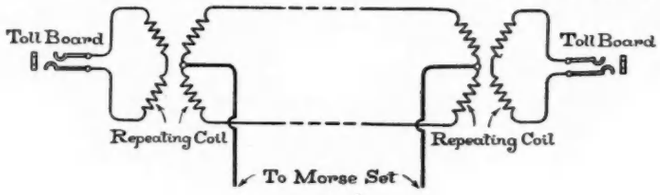


FIG. 6.

and telephone services in either the impedance coil or repeating coil plans is that any point where telephone apparatus connects to the two wires of the circuit, the potential difference of the two wires due to telegraph currents is always zero.

The arrangement of things shown in Fig. 7 is that which gives two telegraph circuits in addition to one telephone circuit from each pair of wires. The drawing shows the situation far more clearly than it can be described in words. The principle involved is that of different frequencies, the pulsations which make up the telegraph signals being so very much slower than those of the voice currents. When it is remembered that this drawing shows the equipment at one end of the line, and that the distant equipment is an exact duplicate; that the impedance coils are capable of passing telegraph impulses with little or no harmful effect upon them; that these coils further act with such a choking effect upon voice currents as to be practically opaque to them, and that the condensers of 2 m. f. each are relatively transparent to alternating currents and opaque to direct currents, it will be easy to see how the two systems of communication can go on at the same time.

A close examination of the drawing shows the direction of windings in the impedance coils is such that the two halves of the total winding are connected in the familiar differential or reverse relation to each other. It will also

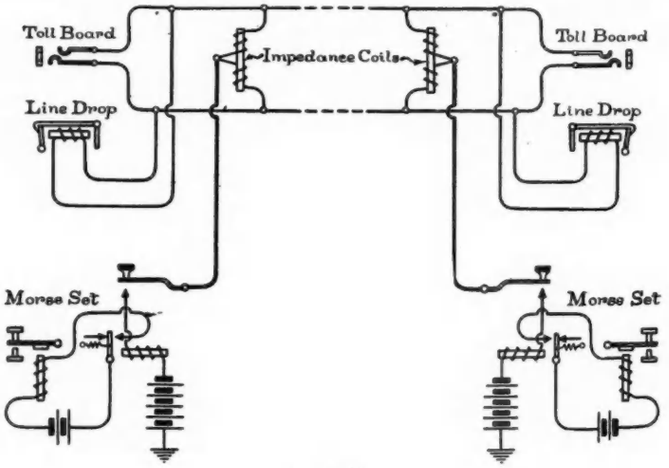


FIG. 7.

be noticed this is not true of the other coils. In the impedance coils, so far as direct currents are concerned, the magnetizing effort of one winding of each complete unit neutralizes that of the other; and this is also true for direct currents, even if interrupted at the highest frequency used in telegraphic hand work; but for currents of such high frequency and small volume as those of speech, the windings

of each unit are practically two independent choke coils in series.

While the other arrangements which have been discussed secure non-interference between the two systems of communication by preventing the telegraph from producing any effect at all in the telephone receivers, this plan operates to modify the telegraph signals in such a way that, although they affect the receivers, they do not produce audible sound. A careful examination of the diaphragm of a receiver properly connected across a composite line while the telegraph is working, will show that it is moving through a considerable range, even though nothing whatever can be heard when the instrument is held to the ear.

I have indicated that each of the plans has some disadvantages. The flaw in this plan is that the shunt across the circuit through the coils and condensers is sufficient to prevent any ordinary ringing. Signals from one station to another require to be given over some Morse line, or by the assistance of special apparatus adapted to respond to currents of very high frequency. As the voice current is of a high frequency and can pass over the pair, so some other high frequency, but of larger volume, may be used to operate a relay at the distant station, and that in turn to display a signal. I have no plan to recommend, however, as there is no simple and convenient arrangement available.

The ordinary ringing current is of about sixteen cycles per second; a skilled telegraph operator will send thirty-two dots per second; the half waves of the ringing current are less abrupt in change than the telegraph dot. For these reasons it is apparent that one may send ringing current instead of telegraph current over any composite Morse line without interfering with the telephone. This possibility enables one to sell the service of one side and retain the other for ringing. The arrangement of keys and signals is obvious.

Telegraph circuits secured in any of these ways may be treated as may be desired within reason, in the way of extending by repeaters.

There are three reasons why it is commercially of advantage to apply these composite methods to some of the circuits operated by almost any long-distance organization.

One of them is to secure an additional earning from the property, because by the very nature of things the lines are practically out of use during a large part of each total day. It is not found difficult to secure an annual telegraph revenue equal to five per cent, on the total cost of the circuit, and this without establishing offices or maintaining a special organization to care for commercial messages.

There is more demand for telegraph service in its private line form than is being fulfilled by all the existing telegraph equipment. An active canvass of commercial interests in one's locality, and particularly of those having offices, factories and branch houses in different places, is certain to produce contracts, at a rate less than for other methods, which will supply the consumer with a better result than he is now securing.

The investment on the part of the telephone company per telegraph station, varies with the different plans, but in all cases is only about as great as the cost of the line and equipment of a telephone subscriber located a similar distance from the central office. This statement is meant to cover the complete equipment, including the telegraph apparatus required at the consumer's station.

The second reason is the advantage of ticket wires over which much or all communication between toll operators may take place. Naturally, this enables toll operators to prepare for one conversation over an important circuit, while another is going on. An intelligent use of such facilities will enable the carrying capacity of the more remunerative lines to be increased enough to defer the stringing of additional circuits.

The third reason is in the transaction of the official business of the telephone company. By its very nature such a company has its offices scattered about the country, and it is too often its tendency to overburden its own circuits with its official business during the day, while on certain routes there may be too few circuits to carry even the remunerative business of the public. It is inconvenient to force the official business into the less busy hours of the day. A very small investment in composite circuits, and a slight rearrangement of the company's organization, will enable an official to dictate telegrams which the stenographer herself, with a little knowledge of Morse, may place immediately upon the line. Such business may or may not be confirmed by mail. It is not essential that the operators be skilled to high speed, as training in accuracy only is sufficient, and even fifteen words per minute is a sufficient rate. Very fast operators reach sixty.

If it is not desired to extend the telegraph network over an entire system, official telegrams may be landed in important centers and transmitted by telephone to destination. Experience in this method of handling messages will show that errors are less frequent than might be expected.

AN INTERESTING TELEPHONE PAPER.

Malcolm C. Rorty, formerly of the home office of the American Telephone and Telegraph Company in Boston, but now superintendent of traffic of the Central District and Printing Telegraph Company of Pittsburg, read a valuable paper on "Applications of the Theory of Probability to Telephone Traffic" before the Chicago branch of the American Institute of Electrical Engineers at a recent meeting, and brought out the possibilities of the theory of probability in telephone work in a way that greatly interested the telephone men present. Mr. Rorty gave the basic formula used in all work on probability, but said that the summation was not easily calculated for specific cases. He displayed three curve-sheets of probability that he had worked out. The first showed the relation between the total number of calls during any interval of time and the number of calls during a particular one-half of the same interval. In the second diagram the relation was between any interval and a particular tenth of that interval, while the third showed the relation between the given interval and one-sixtieth of that interval. On each sheet were several curves giving various refinements of probability, as one chance in 100, one in 1,000 one in 10,000 and one in 100,000.

After displaying and explaining these curve-sheets, the speaker went on to say that the practical application of the mathematical curves of probability will frequently kill a false system in its inception, thus avoiding much experimental work. For instance, call-distributing systems are being considered by both Independent and Bell engineers. In this investigation probability curves will be found useful. Again, they are available in calculating team work among operators. With five operators as the unit of team work, the ordinary multiple board is shown to have 79 per cent of its theoretical maximum efficiency with 4½-second service. Then, too, the curves are of use in determining trunk loads. The manager can select the number of trunks that are indicated for various probabilities of being "stuck" or overwhelmed by rush of business. Thus, if he is willing to take one chance in a 100 of being "stuck" in a certain interval of time, he can use the number of trunks indicated on the curve-sheet. But if he prefer to take only one chance in 100,000 he will put in the larger number of trunks found by referring to the curve-sheet. Further, the curves may be used in determining the proportion of the month's business that will occur during the maximum day of the month.

In concluding, Mr. Rorty took pains to say that the theory of probability is useful only in making experimental data more widely valuable.

Conventions of Independents

NEW YORK STATE INDEPENDENT TELEPHONE ASSOCIATION.

THE fourth annual meeting of the New York State Independent Telephone Association was held in the city council chamber, Albany, New York, on June 16. There were seventy-eight delegates present, representing the properties of Independent telephone companies throughout the state, having an investment of more than $15,000,000. The regular programme was as follows:

MORNING SESSION.

10 a. m.—
Address of Welcome.....Hon. Arthur L. Andrews
Response.....T. Harvey Ferris, Utica
Appointment of Committees by President.....
.....Hon. Howard Hendrickson, Albany
Report of Secretary.....T. S. Lane, Buffalo
Inspection of Exchange of Albany Home Telephone Company by Visiting Delegates.

AFTERNOON SESSION.

1 to 2 p. m.—
Inspection of Manufacturers' Exhibits.

2 p. m.—
Report of Auditing Committee.
Report of Nominating Committee.
Election of Officers and Executive Committee.
"Toll Line Development".....
T. M. Brush, Secretary Independent Union Telephone Company
"Consolidation" .....
....George R. Fuller, Treasurer Rochester Telephone Company
"Development in the East".....W. L. Burke, Troy
"Development in Southern New York".....
.....George B. Wright, Binghampton
"New Methods of Construction".....R. M. Eaton, Niagara Falls

5 p. m.—
Delegates Met at the Wharf of the Albany & Troy Steamboat Company, at the Foot of Maiden Lane, for a River Trip on the "General Carr."
Clam-bake at "The Abbey" at 7 p. m.

In addition to the regular programme, above outlined, three important matters were acted upon by the association, and the following resolutions, covering the use of Independent telephones in state departments, were unanimously adopted:

WHEREAS, The various departments, offices and institutions of the state of New York, located at various places in this state, are all equipped with telephone service known as the Bell system, and,

WHEREAS, Several of said departments, offices and institutions are not equipped with telephones owned and operated by Independent telephone companies, thereby depriving the great army of users of Independent telephones from having telephonic communication with such departments and transacting business with the state offices, as is afforded users of Bell telephones, and,

WHEREAS, The rates for telephone service charged by the Bell system are more than double the rates charged by the Independent companies, a reduction of the rates of the Bell companies to the rates of the Independent companies will enable the state departments to have both systems at the same cost and thereby obtain telephonic communication with more than double the population now served, and,

WHEREAS, The various Independent telephone companies are owned and operated by the citizens of the various towns in which such Independent companies operate and not by foreign capitalists,

Resolved, That it is the opinion of this meeting that it is the duty of the various state departments to afford telephonic communication to all classes of users of telephones and not to confine its patronage to any one system to the damage and exclusion of a large number of citizens of this state having business to transact with such departments.

Resolved, That it is the opinion of this meeting that the state departments are not justified in paying for telephone service furnished by one company an amount or rental greater than the same or better telephone service can be obtained from other companies operating in the same locality.

Resolved, That the various departments of the state of New York, which have not installed telephones connected with Independent companies, be requested to install the telephones in the various localities where situated.

Resolved, That the matter of the installation of telephones in state departments, offices and institutions be referred to the executive committee with full power and that each company operating where a state office or institution is located, act with such committee.

Resolved, That the secretary of this association transmit a copy of these preambles and resolutions to the heads of each department not connected with Independent telephone systems.

The following delegates were selected to attend the annual meeting of the National Inter-state Telephone Association in Chicago; B. G. Hubbell, Buffalo; S. B. Rawson, Albany; T. Harvey Ferris, Utica.

A special tariff report, covering a uniform method of handling and accounting toll business throughout the state, submitted some time since by the special tariff committee, consisting of S. B. Rawson, T. S. Lane and Edward Davis, was unanimously adopted, thereby providing a uniform method of conducting the toll business of the Independent telephone companies throughout the state.

The association is in a flourishing condition. It has a membership of more than 200, which membership is rapidly increasing. It is expected that it will accomplish some very good results during the ensuing year. The following officers were elected:

President, Howard Hendrickson, Albany; first vice-president, Boyd McDowell, Elmira; second vice-president, W. R. Campbell, Niagara Falls; treasurer, T. Harvey Ferris, Utica; secretary, T. S. Lane, Buffalo.

Executive committee: W. L. Burke, Troy; George R. Fuller, Rochester, B. G. Hubbell, Buffalo; Edward Davis, Binghamton; S. B. Rawson, Albany; W. B. Charles, Amsterdam; C. H. Poole, Utica; C. W. Pratt, Boonville; F. M. Potter, Jr., Syracuse; J. F. Stockwell, Oswego; I. H. Griswold, Plattsburg.

* * *

TEXAS INDEPENDENT TELEPHONE ASSOCIATION.

The Texas Independent Telephone Association, which was organized in January of the present year at Dallas, held its first meeting in that city May 10 and 11, with highly gratifying results. The attendance was good and the interest and enthusiasm at high water mark. The meeting was for the purpose of formulating plans for further extending and perfecting the organization. All the officers of the association and the following members and supply men were in attendance:

G. R. Butter, Gainesville; R. J. Thomas, Cooper; James A. Murray, Fort Worth; J. B. Waid, Forney; Tony Schaffer, Waxahachie; C. A. Shock, Sherman; R. W. Bowden, Granbury; W. H. Crouse, Stephenville; W. P. Johnson, Corsicana; Earl Cogdell, Granbury; E. M. Chamberlain, Greenville; T. P. Stillwell, Lone Oak; John W. Martin, Cumby; J. T. James, Campbell; C. E. Randall, Commerce; E. W. Dunaway, Paris; J. B. Earle, Waco; H. M. Aubrey, San Antonio; McD. High, Roxton; T. B. McElroy, C. E. Stimpson, Dallas; C. G. McDowell, Petty; V. E. Raggio, Fort Worth; A. A. Miller, Dallas; D. C. Luigo, Dallas; C. L. and M. E. Martin, Dallas; A. A. Marrs, Dallas; R. J. McHugh, Dallas; Charles F. Speed, Memphis; Aaron Smith, Weatherford; E. F. Fink, Wills Point.

President Dunaway called the meeting to order and read his annual address, which was as follows:

At the close of the year 1904, a handful of gentlemen, representing our interests, met in this city, and we formed our present asso-

ciation at that meeting. Not being able at that time to complete our organization, we adjourned to meet upon the call of the president, and we are here in response to that call.

There never was a time in the history of the state of Texas, or of the United States; yea, even in the history of the world, when the subject of organization is receiving so much attention as at the present time. It is generally conceded that proper organization is a good thing, but that in some cases its privileges are abused. However, that does not condemn organization any more than the fact that the daily violations condemn the necessity of having national, state and municipal laws for the government of our people. We expect to plant the foundation to-day upon which to build the mutual and combined interests of every Independent system and plant in the state of Texas, from the little fellow who is running ten and fifteen telephones to the larger plant that controls and operates its thousands. And while we take as our motto, "With malice towards none and charity for all," there still confronts us the Bell octopus which we have got to meet firmly and with honest, upright business methods; with a service that is up to date and in every point satisfactory.

It is hardly worth while for me to call your attention, gentlemen, to the methods that are employed by the opposition, for they are well known to everyone present—the promises of better service to its patrons, when the opposition asks for a foothold in the community, and which are never given until the Independents are in operation; the discourtesies of petty officials with large heads, even going so far as to use the Independents themselves by securing a majority of the stock in some Independent plant, and holding out the idea to the people that they are purely Independent, while they are unquestionably Bell to the very core. I might take up considerable time in rehearsing the many schemes that are hatched, fostered and let loose upon the public, but there are other things of importance.

In passing, I desire to say, and say it with all candor, that I do not arraign the several officers who are connected with the Bell system in the state of Texas, for they are only instruments in the hands of the monopoly, who are compelled to carry out to the strictest letter the instructions laid down by their corporation. I refer with great pleasure to the pleasant relation existing personally between myself and O. A. Perry, manager of the Southwestern Telephone Company in my little city, and I am glad of this opportunity to testify to his many sterling qualities as an upright, conscientious, honorable gentleman. Mr. Farnsworth, the general manager in your city, I have met but once or twice, and upon those occasions I have been the recipient of his gentlemanly courtesy, which is well known, not only to the citizens of this city, but to all with whom he comes in contact. The only regret I have is that these gentlemen are not now identified with the Independent field, for I feel confident that it is only a question of time when we shall welcome them into our ranks, for there is plenty of room at the top for good men; and I can say right here, without fear of successful contradiction, that on the personality of gentlemen like the ones I have mentioned the Bell owes its local success, and not upon the policy and methods which it follows.

The state of Texas presents one of the best fields for the operation of the Independent telephone business, and it is up to us to secure this business in the right way. The time has passed when it is necessary to educate people up to the use of the telephone, and that any kind of service will give them satisfaction. With the advancement of the telephone business, patrons have become critical and demand perfect service; to satisfy them in this particular and to secure their patronage, it becomes necessary that we look well to our construction, to our operation and to the business methods employed. Therefore, it behooves us to install nothing but the best equipment, up to date in every particular, and which will stand the test.

It is a well known fact that telephone business is built for the future. Cheap construction will result only in aggravation to the man who puts it in, not only for present service, but in years to come, and it is always letting down at the time when he is hardly in shape to replace it. In this connection I might be allowed to say that the investors in telephone property very often make the mistake of expecting their properties to realize upon their investment as soon as they are complete and in operation.

History only repeats itself. The Independent field in Texas is of recent development, and we are meeting to-day propositions that have confronted our sister northern states along these same lines. Their experience has been that the best results are obtained by interesting local capital in these properties. There is no other business where a community of interests will bring better results, and I cannot see why the telephone plant should not be owned and managed by our local business men.

We have also confronting us the careless and indifferent management of small plants, brought about principally through the securing of cheap labor, resulting in the placing of individuals at the head of your business who are unqualified in every particular to handle the same. Your banking institution does not place behind its counters a cashier who is not perfectly familiar with finance and who is not fully equipped in every particular to handle the business of the concern, neither do we take a blacksmith and advance him to the position of a physician to administer to our families. Then why should we, in a business of such vital importance, place a man at the head of it who cannot, for the life of him, tell the difference between voltage or ohmage in electricity, nor the difference between a grounded and metallic circuit?

We have plenty of work to do, and it is my purpose only to outline a few of the important features that this association ought to take up and dispose of at this meeting.

First—The completion of our organization upon a firm basis; and in this particular I would suggest the following out, as far as possible, of the plan laid down by the Ohio organization.

Second—The proposition of a financial basis to work upon. It is a well known fact that no organization can exist and do proper work without the assistance of every member therein contained; and while we want to make it as easy upon each member as possible, yet we must not overlook the fact that we will need funds.

Third—I think it advisable to become identified, as soon as possible, with the National-Interstate Telephone Association.

Fourth—I also think it would be well for us to take up the matter of formulating some means by which we can reach and interest the Independents who do not seem to appreciate the vital importance of an organization of this character. Now whether this plan should be based upon an organizer or through the personal work of each member I leave entirely to the gentlemen of this convention to decide. I know one thing, however, that when we are in successful swing, the gentlemen referred to will gladly join us to reap the benefit of our labors; but we need their presence, influence and money *now*.

My task would be incomplete if I failed to touch upon a vital and important factor in our mutual interests. I refer to our weak brother commonly known among us as the Bell lessee, who has an opportunity to connect with the Independent toll line, but with a mistaken idea that his money interests are advanced by holding onto his old love, he is afraid to make the experiment. We may, by persuasion and other means, finally get him to the point where he will half heartedly give us a connection; but no sooner is this done than down upon him swoops the traffic manager of the Bell and blusters and threatens until our brother is in such a state of nervous collapse that it drives him to the woods and makes it impossible for anyone to reach him on the subject for many months afterward, and the only notice that we get of his decision is that our communication with him is suddenly cut off. We can hardly blame him, for it is a glorious thing to be robbed by such a magnificent corporation, and to have the honor of contributing the lion's share of the revenue of his business to it; and peaceable and sweet should be his sleep when he realizes the fact that every dollar which is contributed by him goes to Boston, that grand old patriotic city of tea party and baked beans fame, to swell the coffers of the stockholders, instead of going to advance the interests of his neighbors and the citizens of his own community and state.

Did it ever strike you, my dear brother, that if it were not for you (as the Bell lessee) this corporation would to-day be without two-thirds of its toll business, and that were you to drop out and quit it in a body it could not do business and its boasted long-distance service, upon which it is depending for its life blood, would be a thing of the past? Can you show me one instance where it has looked after or protected your individual rights or interests? On the contrary, is it not a fact that it is lying in wait for you upon every occasion, to grab the dollar that should rightfully come to you through your labors? Where do you come in for your percentage on long-distance connections? And, by the way, the farmer is another grateful man for all those things he has received so promptly at the hands of these people. Why, I know of a case where he felt so grateful that he spent hours in trying to get "central" to respond to his call, and then gave it up with the comment, "Well, I have always wanted a telephone, and I have got one at last. When I asked the Bell people for it I spoke to them about putting me in a box. I did not think of telephone service when I mentioned that fact to them, but naturally supposed it came with the box. They were quite a while putting the box in, and I suppose the service will come bye-and-bye."

I could dwell at quite a length upon the different excuses that the lessee of the Bell gives for hanging onto the institution, but will not take up your time with them. In passing, I will mention one excuse which seems to be most always advanced, and that is where they have entered into a contract with the Bell for transmitters and receivers at a regular rental and cannot replace all of these of their telephone in use at once. Of all excuses, this is the most trivial and that has the least foundation. In looking around me I see representatives of manufacturers of the very best telephone material and equipment, who are ready and willing to furnish up-to-date telephones, and upon such terms as will enable any honest man to cut out everything that is Bell in his business, and with such ease that he will wonder why he has not done it before.

In closing, I cannot do better than to voice the sentiments and quote the language of the president of the Ohio association when he says: "I want to impress you with the fundamental fact that the opposition is not your friend and cannot be from the very nature of things. You all know that. In the beginning it was intimidation and coercion; the spirit of your manhood fought that to the successful conclusion. The opposition beaten, but not crushed, tried other

tactics. A friendly spirit is now manifested. They go into the district developed by you and offer you many good things. They want to give you long-distance service to points not now reached and try to sub-license. It looks harmless, but stop and think. Are they actuated by any idea of your welfare? No! United they know they cannot defeat; singly they can."

I see that the National association has adopted the shield with a background of the American flag, the national emblem of liberty and independence, as the official sign for the advertising of the Independent telephone business. I know that I only voice the wish of you gentlemen when I say that I hope when this year has rolled around and we again assemble in convention, there will be one feature which will stand out more prominent than any other—the report from every hamlet, village, town and city in the state of Texas that the shield is flaunting over the blue bell and that the company represented by this last emblem has in a business sense assumed the color of the sign which represents it. Then, like the plumed knight Templar, we can point with pride to our emblem and say, *"In hoc signo vinces."*

President Dunaway was followed by Mayor Barry of Dallas, who extended a warm welcome to those present and complimented the enterprise of local capital in building Independent telephone exchanges all over Texas. He noted the rapid growth of the movement in the southwest, and predicted for it a bright future in the Lone Star state.

C. A. Shock, manager of the Independent company operating at Sherman and Denison, replied to Mayor Barry's address of welcome in a pleasing manner.

Following these addresses Secretary Earle read the minutes of the former meeting at which the association was organized. Committees were then announced as follows:

To Aid in Procuring Long-Distance Franchise in Dallas—A. A. Miller, F. B. McElroy, Dallas; James A. Murray, Fort Worth.

Resolutions—E. W. Dunaway, Paris; H. M. Aubrey, San Antonio; C. A. Shock, Sherman.

Finance—J. B. Earle, Waco; E. M. Chamberlain, Greenville; R. W. Bowden, Granbury.

A. A. Miller of Dallas offered a paper suggesting the following subjects for consideration at the meeting: Shall we become a member of the National-Interstate association; importance of the association securing competent men to represent the interests of the individual exchanges; uniform reports for taxation; how can maintenance costs be minimized; systemizing accounts and formulating rules for operating; adoption of Independent design; uniform construction of toll lines; a company's rights; how shall we handle farmer lines? The suggestions were referred to appropriate committees.

Cecil L. Simpson of Dallas told of the efforts being made to get a long-distance franchise in that city.

Pending the work of the committees the meeting adjourned until Thursday morning at 9 o'clock.

Almost the entire time of the meeting Thursday was taken up in hearing and discussing the reports of the committees.

A resolution was adopted to the effect "that it is to the interest of this organization to become a member of the National-Interstate Independent Telephone Association."

The association earnestly urged the Independents of the state "to adopt a high standard of construction," as "in telephone construction the best is none too good and in the long run it is the cheapest."

The following committee was appointed to divide the state into districts and report in the afternoon: E. R. Webber, H. M. Aubrey, J. B. Earle, E. M. Chamberlain, J. A. Murray, C. W. Roberts and Ward Templeman.

The committee reported in favor of dividing the state into seven districts, with vice-presidents to organize each district as follows:

District No. 1—Vice-president, C. L. King, Texarkana. Counties: Red River, Bowie, Cass, Morris, Upshur, Gregg, Panola, Cherokee, Titus, Franklin, Camp, Marion, Harrison, Smith, Rusk, Shelby.

District No. 2—E. W. Dunaway, Paris. Lamar, Fannin, Hunt, Hopkins, Delta, Wood, Rains, Rockwell, Kaufman, Van Zandt, Henderson, Navarro.

District No. 3—J. A. Murray, Fort Worth. Grayson, Cook, Montague, Clay, Jack, Wise, Denton, Collin, Dallas, Tarrant, Parker, Palo Pinto, Erath, Hood, Somerville, Johnson, Ellis, Hill, Bosque.

District No. 4—C. W. Roberts, Abilene. Wichita, Walberger, Hardeman, Foard, Knox, Baylor, Archer, Young, Throckmorton, Haskell, Stephens, Shackelford, Jones, Taylor, Callahan, Eastland, Comanche.

District No. 5—E. R. Webber, Orange; C. W. Emmer, Sabine. San Augustine, Nacogdoches, Houston, Angelina, Jasper, Newton, Tyler, Polk, Trinity, San Jacinto, Hardin, Orange, Jefferson, Chambers, Liberty, Harris, Galveston, Brazaria.

District No. 6—Ward Templeman, Navasota. Anderson, Freestone, Limestone, Leon, Madison, Robertson, Walker, Grimes, Brazos, Burleson, Montgomery, Waller, Washington, Austin, Colorado, Fort Bend, Wharton, Montague, Jackson.

District No. 7—J. B. Earle, Waco. Hamilton, Coryell, McLennan, Falls, Bell, Lampasas, Burnett, Williamson, Milan, Lee, Bastrop, Travis, Blanco, Hays, Fayette, Caldwell, Comal, Guadalupe, Bexar, Gonzales, Levaca, De Witt, Wilson, Atascosa, Victoria, Goliad, Refugio, Live Oak, McMullen, San Patricio, Neueces.

The association took the following action on an Independent design: *"Resolved,* That the sign adopted by the National-Interstate Independent Telephone Association be adopted by this organization and the members be requested to use the same."

The committee appointed to aid in securing a franchise into Dallas, reported strongly in favor of a franchise and presented vital and incontrovertible facts why one should be granted.

Treasurer Earle reported the finances of the association in good shape, with a surplus on hand.

President E. W. Dunaway was elected a delegate to the National convention in Chicago.

It was decided to hold a call meeting of the association at Dallas during the state fair next fall.

* * *

TELEPHONE PROTECTIVE ASSOCIATION.

The Telephone Protective Association, composed of representatives from the Independent telephone companies of Boone, Clinton, Tipton and Madison counties, Indiana, was entertained by the Union Telephone Company, of Carmel, Indiana, recently. The purpose of the Telephone Protective Association is to promote the interests of exchanges of smaller towns and its subscribers are for the most part farmers.

The principal topic discussed was farm telephone service. Papers were read and addresses made, among them one by Charles Norton, secretary of the New Long-Distance Telephone Company of Indianapolis, on "Toll Systems."

From the programme it was apparent that the telephone and rural mail delivery were subjects near to the heart of the farmer. The benefit of the telephone in obtaining for the farmers better prices for his products and its usefulness in emergency calls were discussed. The general feeling of isolation of farm life had thus been removed. Acting on the mutual plan of giving subscribers for stock a reduction in the price for service, it was the conclusion that no farming community need be without a good telephone exchange.

The Union Telephone Company of Carmel, which entertained the association, is a mutual company, with 450 subscribers. At the close of the meeting a big basket supper was spread to more than 500 people. Similar associations are being organized among Independent telephone people of contiguous counties all over the state.

The following officers of the Telephone Protective Asso-

ciation were elected for the ensuing year: C. D. Jones, Baker's Corner, president; E. H. Gallimore, Westfield, vice-president; W. W. Mendenhall, Westfield, secretary; Leroy J. Patty, manager of the Carmel exchange, treasurer.

About fifty exchanges of the four counties were represented in the meeting. The next meeting will be held at Noblesville, in May, 1906.

* * *

MISSOURI INDEPENDENTS IN CONVENTION.

About fifty members of the Missouri Independent Telephone Association met at Sedalia, Missouri, for the purpose of revising the constitution and by-laws of the association, thereby giving greater scope to the Independent companies. President Gary of Macon presided, and Frank S. Leach of Sedalia was secretary. One of the changes in the constitution will enable the Missouri association to become a member of the National-Interstate association.

An important feature of discussion at the convention was the scheme to extend toll lines throughout the state and connect them with main lines running through other states. Within the past eighteen months the cities of Louisville, Pittsburg, Rochester, Cleveland, Indianapolis, St. Louis, Kansas City, Joplin and Topeka have been linked by through telephone lines. With the connection by the Independent lines throughout the state, which is the ultimate object of the association, a farmer living on the head waters of Bear Creek could walk over to his hall telephone and discuss with the commission merchant at any of the towns named and close deals for his produce.

Managers of extensive telephone systems are not seeking to consolidate, but to make traffic arrangements with connecting lines, because it has been demonstrated that a system gives better satisfaction when operated by a local management. The long-distance message is divided up between the various companies carrying it, a clearing house at some central point keeping the record. The charges are made on the basis of distance like telegraph rates.

There are now over 140,000 Independent telephones in Missouri. There are six district associations composing the membership of the association.

The state association will effect a thorough organization so as to work in harmony with the National association to the end that talking facilities will be general throughout the nation for every man who has a telephone. The plan is to have a traffic manager, who will have charge of the main line certain districts and he will be the supreme authority in the territory served.

The following delegates were elected to the National convention in Chicago: Theodore Gray, Macon; J. A. Hudson, Columbia; O. C. Snider, Kansas City; W. H. Bassett, Jefferson City. The following alternates were elected: Dr. S. T. Nell, Clinton; A. B. Hughes, Hardin; W. B. Scruggs, Harrisonville, and M. L. Golladay, Holden.

The following officers were elected: President, Frank Buffum, Louisiana; vice-president, W. B. Scruggs, Harrisonville. Executive committee, Theodore Gary, Macon; J. A. Hudson, Columbia; F. C. Taggart, Richmond.

INDEPENDENT TELEPHONE SITUATION IN DETROIT.

The Co-Operative Telephone Company of Detroit, which secured a franchise from that city about five years ago and now has small exchanges in Detroit, has been reorganized. C. O. Trask succeeds A. A. Cowles as manager and takes the place of Max J. Towler on the board of directors. Mr. Cowles has been elected vice-president of the company, but has retired from actual management.

Following the reorganization of the Co-operative company, amended articles of association were signed by the Peninsular Telephone Company, increasing its capital stock from $25,000 to $100,000. This company furnishes toll-line connections with Independent companies throughout the state to the Co-operative company and now covers the only two Independent lines running into Detroit. One line runs to Toledo through Wyandotte and Monroe and the other forms a circuit with three others to the central part of the state through Plymouth and Lansing. It is said that the Peninsular company will at once build new lines into Detroit, and that a large sum of money will be spent for this purpose in the next three months. One line is projected from Detroit through Ann Arbor to Jackson and the west, and another through Pontiac to Flint, where it will connect with the Saginaw line. The Peninsular company is organized by stockholders from Detroit and Independent lines throughout the state. In the state, outside of Detroit, there are said to be 70,000 Independent telephones in use, as against about 50,000 telephones owned by the Bell company, not including Detroit.

The Co-operative company was organized under a special franchise in which it was granted the use of the city's conduits, poles, buildings and other property on a rental basis at the actual cost of maintenance. The company says that the city has been overcharging it for the use of conduits, poles, etc., and has begun suit against the public lighting commission. C. O. Trask, the new manager of this company, built the Alma line, now known as the Union Telephone Company, one of the best systems in the state. For the last three years he has been building Independent lines in Missouri. At the time the Co-operative company secured its ordinance it was regarded in the light of a possible future municipal telephone plant and therefore secured the concessions granted by the ordinance. The rates which this company can charge are fixed by its ordinance at $48 for business and $24 for residence telephones. It is surmised that the activity developed by the Peninsular Telephone Company is the result of the recent agitation among the Independent telephone companies throughout the state; and the Independent systems may, through the Peninsular company, acquire a strong foothold in the city of Detroit.

"HELLO GIRLS" DRAFT SET OF RULES.

The "hello girls" in the employ of the Citizens' Telephone Company of Kenosha, Wisconsin, recently drafted the following set of rules:

If you have a telephone in your office or store, call up central and then go and wait on your customers. Of course, central can afford to wait, as she has nothing else to do.

Take your time about answering your bell, or, what is a great deal better, do not answer it at all, but wait a half hour and then ring up and ask who called you and get mad if central has forgotten who it was.

Hang up the receiver big end up, as in this way it gets full of dust and out of order, and this will furnish you with an excuse for swearing at the telephone system. When through talking drop the receiver or throw it down. This allows the batteries to run out and breaks the strands on the receiver cord. This gives you another excuse to kick.

Throw keys, combs, etc., on top of your telephone, which will short-circuit your instrument, then go to sleep and no one can call you.

Never speak kindly to the operator, as she is more used to being called names.

If the party you called does not answer you, blame central.

Never call by number, as you don't have time to look in the directory and central has time to burn.

If you get the busy signal take an ax and knock the transmitter off. This improves the service very materially and pleases the manager.

Telephony.

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THE LESSON OF THE CONVENTION.

THE First National-Interstate Association has become history, and among other lessons has taught anew the immense amount of practical value to be gained to the business in having such gatherings as this. The pall cast over the gathering by Mr. Sheerin's tragic death served to make the attending delegates even more serious and earnest than would otherwise have been true.

In point of real and lasting benefit to the cause, one of the most useful gatherings of the kind heretofore was the meeting of the Ohio association a few months ago. Not the least of the reasons for that usefulness lay in the fact that a great amount of the work was done before the meeting began. The committees which prepared the reports on auditing, equipment, operating and management in other particulars rendered a service which it is likely they themselves wholly underestimate.

When telephone conventions of the old type went out of fashion, by request, twenty years ago, it was because free discussion began to seem dangerous, and because too much publicity began to seem undesirable. That a danger of a particular sort did exist was proven by the later reappearance of some of the sayings in the form of testimony in patent litigation—given by the other side.

The thing the old guard feared is the thing the present volunteers are looking for—publicity, lots of it, and of the best obtainable kind. The whole Independent interest seems to be willing to appoint itself a Committee of Publicity and Promotion, and to see to it that it keeps not only the public informed as to the magnificent but simple thing it has set out to do, but to exchange views for mutual benefit in a way which cannot fail to be of incalculable advantage.

Did you ever stop to think that one of the things which has made the Standard Oil Company great is the closeness of touch between its parts? There is a telegraph line along every pipe line, and its stations are manned by Standard operators, handling Standard stuff and nothing else. This is in the way of preserving secrecy, of course, but secrecy from the dear public only; there is no attempt to keep things under cover inside. Perhaps there are things about the telephone business, which as yet, with a keen competition still existing in some quarters, would as well not be discussed in wholly open meetings. But in the main these are problems local to the individual companies, and apart from the questions that require community of action to settle for the good of all.

It is neither an avowed purpose, a present necessity, nor a probable outcome of the National-Interstate association that it shall form any such agency as shall take command of the individual activities of the operating companies. At least for now, a large measure of the strength of the Independent body is in the freedom of its parts. None the less, there is as much to be gained by union as in similar examples of the past.

In the coalition of states which forms our present union, each was left free to act in individual and independent matters quite as if it were a sovereign principality. Yet the encouragement given by the community of interest and action in general matters has made the nation great among the powers of this earth. When our forefathers got together to outline a working programme, they announced their proposal to be "To form a more perfect union, provide for the common defense, establish justice, insure domestic tranquillity, and promote the general welfare."

The things which brought the National Association into being were a need for the "establishment of justice" to themselves—which in the absence of union could never have been gained—and to "provide for the common defense" against a danger which threatened the existence of all. Much of the need of protection against danger from

without has passed away. There are still advantages to be gained by the "formation of a more perfect union" to the end of "promoting the general welfare" and securing the priceless benefits of tranquillity.

ONLY A TEMPORARY LOSS.

THE sale of the United Telephone Company of Bluffton, Indiana, to the Bell interests has in nowise discouraged the Independent workers of the Hoosier state. On the contrary it has only made them more determined than ever to press the fight against their competitor and to gain back in the briefest possible time the territory temporarily lost to them through the duplicity of the men at the head of the United company.

In Marion, one of the cities included in the Bell purchase of the United, an Independent telephone company has just been organized, and, as a nucleus, has purchased the Wilson and McCullough private line between Marion and Converse, and will establish a long-distance toll line between Marion and Indianapolis by way of Converse. Other lines will be constructed, it is said, between Marion and surrounding cities, where the Bell company has not purchased a controlling stock in the Independent exchanges. Representatives of the Independent company have opened an office in Marion and will ask for a franchise at the next meeting of the city council. The sale of the United Telephone exchange in Marion to the Bell interests has made it impossible for Marion citizens to reach adjoining cities which have the Independent telephone, as the Bell company will not give connections.

A few days ago a meeting of Independent telephone men was held in Ft. Wayne, where plans were made to immediately install new Independent telephone plants in all the cities and towns where United exchanges previously existed.

Had the officials of the United company realized the storm they were bringing down on their heads it is doubtful if they would have sold out to the Bell. On all hands, since the transaction, they have been the objects of derision and scorn, and their lot has, indeed, been anything but a happy one. These men are making a strenuous but futile attempt to square themselves in the eyes of their former co-workers and the general public, as is shown by the following dispatch from Bluffton:

> In view of the fact that there is considerable misapprehension as to the effect of the recent transfer of part of the United States Telephone Company's stock to new holders, General Manager Sale has issued the following statement: "The property was not sold to any other person or corporation; a part of the stock was sold by individuals, to other individuals. It is still the United Telephone Company and will continue to operate under the franchise granted by the various municipal corporations. These franchises fix the rates. There can be no advance. The principal stockholders are still largely interested in the stock of the company. Five of the six old directors still remain on the board, and will control the policy of the company with Hon. Hugh Dougherty as president. No change will be made in the operating official forces. All contracts with Independent companies will be carried out. Patrons have gained a distinct advantage that we believe is enjoyed by no other telephone system in the United States, viz., access to the toll lines of the Central Union and American Telephone & Telegraph Company, while still retaining connections with Independent lines. Patrons are asked to give small heed to the howls of would-be promoters who are anxious to secure franchises for speculative purposes."

No one will be deceived by the foregoing cleverly worded statement. Its purpose is intended simply to blind, if possible, the eyes of the public to the true facts in the case. In this it has signally failed. The transaction is known to have been a cold sell-out to the Bell, and that's the end of it. No dissembling on the part of Mr. Dougherty or his colleagues can deceive the Hoosier Independents. Now that they have made their bed, let them lie in it, and take the consequences like men, instead of trying to make a notoriously deplorable situation—a Bell state of affairs—appear like an advantageous proposition for the Independents in the United territory.

THE TELEPHONE REPEATER.

THE search for the successful telephone repeater still goes on. A pair of patents have just been issued to one Herbert E. Shreeve, covering a system in which, so far as may be seen from what is disclosed by the papers, there are the qualities of reasonable harmony with existing methods and apparatus, and the ability to talk both ways.

Whether or not this repeater when inserted in a line will enable one to talk better than over the line without it, will remain to be seen and heard. The general plan is that of combining repeating coils—which in themselves have no ability to increase the strength of transmitted speech—with a receiver. A certain amount of the voice current reaching the repeating station from the sending point is caused to actuate the receiver part of the outfit, which in turn operates the transmitter part, which in its turn speaks to the line through the repeating coils.

Let us hope that a real accomplishment has been made, for the thing which wants proving is that a kind of telephone repeating which really increases strength is a possible and not an impossible thing. Much social advantage waits on the coming of this thing, for if it is good it will enable the cost of lines to be reduced, and the cost of conversations likewise.

It is not the ability to talk from coast to coast of our country, nor under the seas with other continents which will most make the repeater valuable; for, as Mr. Miller has pointed out, conversation with Europe through the agency of repeaters, or workable deep-sea cables without them, would be in little demand because of the small portion in a day in which respectable citizens would be awake in both countries at the same time. By any plan we know of now, the cost of conversation would be so great that only kings and princes could pay the price.

A right repeater will do much toward rendering possible the building of long-distance lines of very small wires enclosed in sheaths and buried in the earth.

TO PROLONG LIFE OF TELEPHONE POLES.

ALL large users of products of the forests of the country are commencing to sit up and take notice of the fact that supplies are becoming limited, and they are on the lookout for methods of renewing the supplies or of preserving material already at hand. The railroads have gone into the matter in a practical and scientific manner, and are finding good results from the treating of railway ties and timbers. The government has been more than willing to give the benefits of its researches along these lines. The bureau of forestry is proving of undoubted value in its co-operation with the railroads in this work. That government department has also recently been working with the telegraph and telephone companies of the country in a study of how to prolong the life of poles.

There is not much wear and tear on a telephone pole above the ground. From the point where it is directly affected by contact with the ground a pole will last as long as is desired. But it is at and near the surface that the pole will rot, and it is that section to which the attention of the experts is being directed. In a standing pole this section extends from a point about six or eight inches above the ground to about the same distance below the surface. Deeper down than that the pole is usually found as sound as it is at the top, after any number of years of use. Decay sets in at the ground line and works both ways. Under certain conditions the work of decay is more rapid than in

others, depending on the character of the soil and some other conditions. This work of decay is aided by the wind pressure on the wires supported by the pole. The part of the pole at the surface rests on the fulcrum, and there is wear as well as decay.

The woods that have given the greatest satisfaction and that have lasted the longest are chestnut and white cedar, but the life of the former is but from twelve to fifteen years, and of the latter, from ten to twenty years. The experiments already made by the bureau of forestry show conclusively that poles can be subjected to a preservative treatment which insures materially lengthened life. This treatment consists of impregnating the wood with antiseptics which prevent the growth of the fungi that cause decay. Creosote has been used in the experiments, and as it is only necessary to treat about a foot of the pole, if that part can be preserved the rest of the pole will take care of itself. Further experiments are to be made, treating the entire butt of the poles, thus carrying the antiseptics beyond the point of decay.

Up to the present time the telegraph and telephone companies have made little use of the preservatives. The supply of poles has been abundant, just as the supply of ties was abundant, and they have given little thought to the necessity of economical study of the question. But sooner or later these problems must be attacked, and the users are now beginning to see the advisability of directing their energies along this line. Millions of poles are employed, and thousands of them must annually be replaced. New lines must have new supplies, and the forests are not inexhaustible. Both the telephone companies and the forests will profit if a way shall be discovered to add at least fifty per cent to the life time of a pole.

THE TELEPHONE IN THE COUNTRY.

A WRITER on the subject of the rural telephone says that "with a telephone in the house, a buggy in the barn and a rural mail box at the gate, the problem of how to keep the boys and girls on the farm is solved." The quoted words are weighted with wisdom, as brief consideration will show. Everything that helps to remove the lonesomeness of farm life benefits the whole nation. For it is this lonesomeness in the past that has too often driven young men and young women, at the very age when the craving for companionship with the world at large is most insistent, from the old home farm into the town. And this is a road upon which, unhappily, there is not much back travel.

The evil is undoubted, for, without decrying the value and importance of commerce and manufactures, all the world knows that the basis of our national prosperity is agriculture—agriculture in the widest sense of the word, the annual and ever-recurring bounteous toll which we take from Mother Earth, without which other branches of industry would starve—mining, manufacturing, trading, carrying, banking, inventing, legislating and high thinking, one and all. Therefore, to reach the root of the evil we must strike at the isolation of farm life. The railway has done something to relieve the situation, but after all the railway by itself just brings the current of life past the farm without making any real distribution of the beneficent water. Rural free delivery gets closer to the difficulty, for daily letters and the daily newspaper keep the farmer in close contact with the world, and make him feel a part of it. And now comes the rural telephone, which promises to be the greatest reformer of all, inasmuch as the conversational facilities it provides make a mockery of milestones and turn a widely-scattered population into a compact neighborly community.

The institution has its business side as well as its lighter social aspects. The farmhouse with a telephone is no longer at the mercy of the speculator; while the buyer is looking over the herd you are at your telephone verifying his quoted price. The farmer is brought into direct touch with the consumer; the tendency of the innovation is to eliminate the middleman. Moreover, the telephone puts the dweller in the country on advantageous terms as a buyer as well as a seller; he can get what he wants promptly, can compare prices before he buys, and all this without leaving his home, and so incurring loss of time, which means loss of money.

On the social side the rural telephone is being put to many new developments. In some districts, we are told, there are evening musicales, the accomplished contributing the programme, while others, scattered over an area of many square miles, form the audience. Then all day long there is the chance of the friendly gossip that is dear to the hearts of all women, and of many men as well if the truth were confessed. Report even has it that, on systems where the party line is in vogue, there are invariably listeners all along the wire for every scrap of conversation going. So a whole countryside may learn that the doctor is on his way to Mrs. Brown, Mrs. Jones or Mrs. Robinson, and in sympathetic expectancy the scattered homesteads become very closely kin.

So much for the rural telephone as a general proposition. The country reader who is not on a system will want to know how he may be put on terms of equality with his more fortunate brethren. Be a promoter, take the initiative, interest a neighbor in building a line to connect your homes. Others will see its advantages, join you, and by a natural evolution your service will extend into the near-by towns. The soundness of this counsel may be attested by a specific case in point in southern California. A group of little towns clustering around Pomona have formed themselves into a rural telephone association, with Pomona as the central station. San Dimas, Lordsburg, Lemon and Claremont are in the combination, and other settlements are getting ready to join. There was previously a telephone service over the area, provided by the Bell company, but its terms were too high for general use by such communities. However, while $2.50 per month could not be paid, $1 a month is readily available.

It was the local horticultural club in this instance that became the promoter, using its organization to secure clients on these terms and subscriptions of capital on the co-operative plan. Altogether, a sum of $40,000 was put together, and in a widely-spread district, where there were formerly only a few score telephones, there is now a perfect ramification of wires. No fewer than 900 homes and places of business are in intercommunication after a single year's operations, and more subscribers are crowding in. Not only this, but a dividend of 8 per cent has been distributed, and there are still ample funds available for extensions of the system. Thus we see that a telephone system is within the reach of every enlightened farming community, with the certainty that local efforts will insure, at a cheap rate, the inestimable boons that being in constant touch with the world conveys.

A TELEPHONE MUSICALE.

Recently in Painesville, Ohio, a telephone recital was given over the lines of the Home Telephone Company of that city, which was a novel affair in its way and a great success as well. A local music company gave the recital, the programme consisting of high-class vocal and instrumental selections rendered by musicians of ability. It is estimated that at least 1,000 persons listened to this unique entertainment; all were able to hear plainly each number, and at the close of the musicale the management of the company and the music firm were showered with thanks and compliments for the pleasure they had given the large audience of listeners.

In the Financial Field

FEDERAL TELEPHONE COMPANY MATTERS.

IT is said plans are well under way for the dissolution of the Federal Telephone Company. The company has a capitalization of $1,000,000 and it is said the debts range a little over $3,000,000. It is proposed to sell the assets of the company to the stockholders, turning over the proceeds to defray the debts. To do this the stock would have to sell to the present stockholders at about $30 a share. They would receive in return for their stock the stock of the various companies held by the holding company. Originally the Federal Telephone Company held most of the stock of twenty-two companies engaged in the Independent telephone business throughout northern Ohio, and it also held the control of the stock of the United States Telephone Company, the long-distance line covering the middle west.

* * *

MARCH EARNINGS OF UNITED STATES COMPANY.

The March financial statement of the United States Telephone Company has just been made. The growth in the receipts is satisfactory, beginning to show something of the increase which has been expected with the better facilities which have been afforded, due to the extension of the lines of the company. The operating expenses, however, made a good gain, too, but there is a fair gain in the surplus for the stock. The comparative statement is as follows:

	March, 1905.	1904.
Gross earnings	$40,445.87	$35,417.90
Expenses and taxes	24,162.04	20,156.75
Net earnings	$16,283.83	$15,261.15
Deductions	9,110.85	8,593.80
Surplus	$ 7,172.98	$ 6,667.35

* * *

SATISFACTORY ANNUAL REPORT.

At the annual meeting of the Northern Illinois Telephone Company, at Sandwich, Illinois, reports for the past year were very satisfactory. The company has expended on new work during the year $19,883.17. It now has 2,506 telephones in service, a gain of 220 during the year. The amount received for rentals was $37,872.23 and the general expenses amounted to $27,404.44. The board of directors authorized the issue of $25,000 more stock, which, when sold, will bring the paid-up capital stock of the company to $150,000.

* * *

BRIEF FINANCIAL NOTES.

The Brookville (Ind.) Telephone Company has authorized the issue of $5,000 preferred stock.

The Beaver Dam (Ohio) Home Telephone Company has increased its capital stock from $15,000 to $25,000.

The quarterly report of the West Point (Miss.) Telephone Company shows receipts for the quarter amounting to $1,372.74.

The recent decline in the shares of the American Telephone Company (Bell) from 144 to 137½ has excited considerable comment.

The Mobile (Ala.) Home Telephone Company will increase its capital stock to $150,000 for the purpose of making extensive improvements to its system.

At a recent meeting of the stockholders of the Laingsburg (Mich.) Telephone Company it was voted to increase the capital stock from $25,000 to $100,000. The company is in a very prosperous condition.

The Northern Telephone Company, with headquarters at Fonda, Iowa, has increased its capital stock from $100,000 to $150,000.

The Northeastern Telegraph & Telephone Company, which operates telephone wires from Bay City to Alpena and Cheboygan, Michigan, has filed in Wayne county, Michigan, a trust mortgage for $150,000 to secure a bond issue of that amount. The money raised is to be used in extending the system.

The stockholders of the Sandusky (Ohio) Telephone Company have decided to increase the capital stock of the company from $75,000 to $150,000. It has also been decided to arrange for a refunding of the present indebtedness of the company. A new bond issue will be made to take up all outstanding bonds.

A mortgage to secure an authorized bond issue of $100,000 has been filed in the county clerk's office by the Clinton (N. Y.) Home Telephone Company. It is given to the Citizens' Trust Company of Clinton, and covers the company's plant in Clinton, its toll lines, and such property as may be acquired. Twenty thousand dollars of the bonds have already been issued.

In order to meet the demand for increased long-distance service, the directors of the Consolidated Telephone Company of Scranton, Pennsylvania, have recently authorized a further issue of $600,000 5 per cent gold bonds, which are now being placed on the market. The money thus raised will be used exclusively for the erection of new lines and the installation of branch plants.

The Ft. Wayne (Ind.) Sentinel says: "The defection of the United Telephone Company from the ranks of the Independents this week has had no effect on the price of telephone securities, and is not likely to have. Contrary to first expectations, there has been no selling and telephone securities continue to show the same firmness that has characterized them during the past few months."

The Western Electric Telephone Company, with main office at Mason City, Iowa, has filed a chattel mortgage at Sheldon, Illinois, on its property in that county to secure bonds issued at the rate of 5 per cent per annum for the sum of $600,000. The property included in this mortgage covers the exchanges at Osage, Mason City, Charles City, Sheldon, and 1,784 miles of long-distance lines in northern Iowa and southern Minnesota.

At a monthly meeting of the board of directors of the Columbus (Ohio) Citizens' Telephone Company reports showed the company to be in a flourishing condition and everything in readiness for the installation of the automatic plant. The United States Telephone Company, which controls the long-distance lines of this company, will make extensive improvements and by the close of the year the equipment of the company will be second to none.

At the annual meeting of the Nuckolls County Telephone Company, held at Nelson, Nebraska, a statement of the company's condition was made, showing the total expenditures to date to have been $15,472.31; total indebtedness, $7,677.22; material on hand, $2,062.00; average investment for year, $4,360; rents and tolls to date, $1,609.56; operating expenses, $334.97. The capital stock was increased to $50,000, and it was agreed to issue bonds not to exceed $10,000.

Questions and Answers

Conducted by J. C. Kelsey, Purdue University, Lafayette, Indiana

Is it advisable to use carbon arresters and fuses at the subscriber's station?—J. A. S.

From several years' experience in dealing with vicious northern Minnesota lightning, I would say that a purely metallic subscriber's station does not need any protection, except that afforded by the switchboard arrester. For party-line service, selective ringing, where a ground connection is necessary, it is essential that the station be protected by carbon arresters. Lightning has so many vagaries that it is foolish for me to tell you that lightning will do this, and won't do that. But there is sufficient reason for leaving out arresters for the subscriber's station—that is, metallic, single-party service. In the first place, it adds considerable to the cost of installation of the instrument. It requires a ground wire, and that always is a half day's work. If real lightning hits the line, the protectors won't help the instrument, nor will they protect the family. The usual lightning effects are harmless, and expend themselves on the carbon arresters in a harmless flash. But this flash always seems to ground the line at the arresters, and a permanent line signal results. This adds to the maintenance cost, as a man has to make a long trip simply to clean the carbon arresters. Had there been no arresters there, there would have been no damage done—no flash, because the insulation in the house is good, and the lightning charges on the line can find many weaker places to break down than at the house. I have noticed that no metallic line instrument has been burned out in those two years, while the grounded party instruments have suffered, even though protected. But the protectors have saved dozens of party line instruments, as has been seen from the utter destruction of the enclosed fuses, and the complete smattering of the carbons. It is certain that had there been no arresters, the bells would have suffered. These bells were connected to ground through 2,500-ohm bells, and 3,000-ohm plain resistance. As the coils had much impedance, it is plain that a charge would prefer to jump the carbon arresters every time, even if intense enough to blow all the fuses.

A line grounded at one end is no more free from disturbance than a free line. All lines have considerable resistance, and charges can accumulate faster than a ground at one end can carry them away. It does look reasonable to think that a ground is better, but is it enough? By having a line capable of being grounded at each terminal, it would seem that protection would be more perfect. But it is a great question—the necessity of putting $5,000 worth of arresters on your instruments—when the number of damaged instruments will be very small. This statement is for metallic service alone. For grounded service—that is, selective party work—arresters are necessary, or the number of damaged bells will be appalling. The selective ringing systems, which use the ground for a return, are not satisfactory. They require lightning protection, which is extra cost. They require lots of attention after each and every storm. A storm in the next county is likely to make all the carbon arresters respond. But what harm would result, were the arresters absent? None.

If the lines are on a pure metallic basis, I would not put in a moment's worry about protection, providing the exchange is properly protected. One policeman will do as much good as two, ninety-nine cases out of a hundred. If you anticipate party-line service, you must anticipate station arresters, unless you confine yourself to purely metallic ringing. By all means, make your exchange ground the only one in your system. You will reduce your maintenance cost, you will not need to fear lightning, and you will be happy. But once use Mother Earth as your assistant, and your troubles begin. The trolley people own the earth, and any system using that marvelously sensitive instrument, known as the receiver, will fully realize this fact.

Another point: Consider a metallic line, with arresters at the exchange, and a ground on one side of the exchange battery. Suppose a lightning disturbance. Both sides of the metallic line are affected alike; they have the same earth-seeking potential. Why should the telephone on the end of the line suffer, unless the walls of the house were wet, the insulation of the wires bad? There is no temptation to ground at the instrument. It is barely possible that a charge would get on one side of the line and have to pass through the instrument to get to a ground. There is no temptation for the charge to go anywhere but to the weakest insulation point. That point should be at the arrester, at the exchange. When both wires of a metallic line are at same potential, no current will flow. That is true of the static charges. With transposed and balanced lines, the charges are equal.

I have heard a great deal of talk, and have read a great deal about what is the proper percentage for depreciation and maintenance, and am more puzzled than ever on each suceeding article. One thing I wish you would touch upon is, what is done, or what should or could be done with the depreciation money set aside?—C. W. B.

I am afraid I can only add to the puzzle. It is a favorite subject of mine, and after hearing lawyers, auditors and engineers, I confess to the puzzlement also. In looking about a telephone plant, there are more things concerned that are appreciative rather than depreciative. The underground ducts in a great majority of cases are appreciative property. Who knows how soon a great wave will sweep over the country, that will call for beautiful, unencumbered streets and invisible wires. Besides, ducts are such that they don't depreciate. If a duct gets out of order, it is repaired, and is as good as formerly. Nothing but explosions damage ducts, and they are very infrequent.

The real estate of a telephone system is also an appreciating property, gaining in value and generally out of the question of depreciation. It is well taken care of in the maintenance column. The switchboards and moving, or active, parts, such as storage batteries, generators and instruments, will last for years. I know of certain telephone property, which started to give service in Cincinnati in 1882, later giving service in Kansas City, and now doing work in various towns in Kansas and Missouri. These twenty years have revealed no tendency on its part to wear out, and the equipment is still good for years to come. But it is not a question of wearing out; it is a question of economic utility. How long will this apparatus give the service required? The apparatus might be made to last forever, but it already has made three distinct changes. What Independent concern has a "farm" on which it can farm out its obsolete city stuff? Not very many.

In twenty-five years, there has been just three distinct stages of telephone switching. It amuses me to hear stories of the great scrap heaps, hidden behind the buildings of the Bell licensees. *What little scrapping they have done has not been wasted. It goes to the gentle rural subscribers.* I can show anyone modern common battery exchanges is rural districts of our largest cities, made out of

equipment that first saw service twenty-five years ago. So I have concluded that depreciation must come from causes other than the wearing qualities of the goods. Depreciation must come from the fact of utility. The first general telephone system was series grounded genus. It lasted twenty years in some of the large cities. The second stage was shorter lived, but there was not so much of it. This was the self-restoring drop, or branch terminal board. Then came the common battery systems, which are yet infants, and should have ten to twelve years' life, judging from the old systems which stood for twenty years. There is not much to wear out, especially the two-strand Independent systems, which will outlive the present Bell common battery systems at least ten years. It is a fact that the Independent systems have better jacks and plugs.

About thirty-five per cent of telephone system could be reasonably subjected to a ten per cent depreciation account. Suppose a $1,000,000 plant, which would allow $350,000 to be cared for on a ten per cent basis. Ten per cent is fair, when such a small per cent of the plant is considered. This would make a depreciation account of $35,000 a year. What is to be done with that annual $35,000? Invest it in new work; in enlargement; in development of new business entirely. A great many telephone plants to-day are just ready for profitable business. They are at a stage where the fixed charges per subscriber are at a maximum, and where new subscribers could be added at very little cost, which would decrease the cost per telephone materially.

When the time comes for the scrapping of the switching plant, which is all uncertain, the ten years of constant new building will reveal profit enough to build the newer system, besides adding visibly to the assets of the company.

I find the Varley and Murray loop test entirely useless in this locality, on account of the variable earth current potentials. They range everywhere from one to thirty volts. How can one locate faults, such as a wet cable, under such conditions?—C. H. D.

Knowing some of the conditions in your locality, I believe the electric lines shut down at 1 o'clock a. m. While they do not shut off the power, they have nothing but construction cars, with workmen, on the line. There are ways of doing that work in the day time, requiring practice and rather a divining sense—that is, knowing about where the trouble ought to be. But in this case, I advise looking for that trouble after 1 o'clock in the morning. If your night man cannot do this, it is up to you. You will find the earth currents missing, and your galvanometer needle quiet.

In our town we have a trolley line, and in my opinion it is not well bonded. The waterworks company has a main, paralleling this road for a mile, and which then breaks off at right angles. There has been some agitation about electrolysis, and to my mind, the pipe, breaking off at right angles, stands a good chance of being destroyed at the turn—that is, where the current leaves the pipe. What measures can be taken to protect this water pipe?—M. F. H.

From this safe distance it looks like a sure thing that the waterpipe will suffer from electrolytic action. It may be that the current really enters the pipe at the right angle turn. In that case, the trouble will be at the other end. If you will take a voltmeter, you will be able to tell whether an electropositive or electronegative condition exists. If the electropositive condition exists, the trouble will be at the right angle. However well that track is bonded, it cannot retain all the return current, and it is safe to say that precautionary measures will have to be adopted at once. The pipe should be measured with a voltmeter throughout its length after leaving the right angle turn, as well as before. If the trouble reveals itself at the right angle turn, a remedy would suffice in this manner. You could bond the water pipe to some heavy copper wires, making sure to get good joints, carry these copper wires in a trench toward the power house, a few feet, anyway—say twenty-five—and then attach the copper wires to a good ground plate. By this, you will cause the current to leave the pipe through the copper ground plate, which will protect the pipe by reducing the electropositive potential to zero, or at least, nearer zero than before. By all means, examine the pipe at the places you detect the electropositive potential. A pitting will be seen, which you cannot help but recognize. You could bond the right angle turn to the rail, which would possibly give better results, and it is certain that the trolley people will co-operate.

At the meeting of the Association of Railway Telegraph Superintendents, at Chattanooga, Tennessee, in May, it was brought out that the single-phase alternating-current trolley system is not destined to wide application, or extensive use, on account of the high cost of car equipment, the complexity of the system, and its disadvantages with respect to exchange of traffic with existing direct-current systems. Is this objection well grounded, and is there hope that the single-phase railway system will only be a fad, as it were?—H. A. H.

It is a sure thing that the single phase road is here to stay, and that it will be existing everywhere, just as soon as some of the railway people get enough courage to cut out the rotary. As far as exchange of traffic, the series alternating motor will operate very nicely on a direct current system, and the cars of the single-phase system readily pass into the heart of the city over the present lines, which you know are direct current. As far as complexity is concerned, there was a time when all things electrical were considered complex. When the steam roads go into the electrical business, it is safe to say that the single phase system will be used. Of course, the New York Central Railroad chose direct current, but it will not be long before roads will have to choose a system which can carry 15,000 volts on the trolley wire.

In this same meeting, the single phase railway of Richmond, Indiana, was discussed—the failure of a telegraph line 300 feet away from the alternating trolley to give any service at all when the current was turned on the trolley. If a telegraph line is rendered useless at 300 feet, what will surely happen to a telephone line on the same highway. Yet Mr. Norton of the New Telephone Company of Indianapolis reports no trouble to his toll lines from the alternating trolley at Rushville. This is good news, and denotes possibly that their lines have been put in proper condition.

The alternating trolley is not a fad. In time it will ramify in all of our telephone directions, and trouble will ensue—that is certain.

[NOTE.—I am very sorry to note the loss of three questions from my file, and hope that these parties, not finding the questions commented on, will repeat them for the benefit of the other readers. I promise to take better care of them in the future.—J. C. K.]

TELEPHONE SAVES BANK'S GOLD.

The mistake of Miss Nellie Sperry, a night telephone operator at Fruita, Colorado, who rang up the First National Bank instead of the city marshal, prevented the bank from being robbed of $15,000 and also prevented the capture of the safecrackers. The robbers first blew open the safe of the Fruita Mercantile Company, securing $700. Then they went to the bank, blew off the outer door of the big safe and were about to shatter the inner steel plate when the telephone rang, frightening them away. A roomer near the bank had seen the flash of a dark lantern in the bank and reported it to the telephone office, with the request that the marshal be summoned. The girl became scared and rang up the wrong number.

Value of Telephone Securities

A. B. GREENSHIELDS

OF THE gentlemen present at this convention who are interested in the building and development of the vast Independent telephone properties of this country have given as much care to and observed conservative business judgment in connection with the issuing of the capital obligations of your various companies as you have given to the rapid extension of the telephone business, it will require no advance agents or "Bostonian authors" to prove to the people that one of the safest and most remunerative places for their hard-earned savings is in the first mortgage bonds of a conservative and well managed telephone company.

I do not propose to go into the progress and development of the Independent telephone business, as that will be more than fully discussed among you at this time. What I wish to do is to take a calm, conservative and commonsense view of Independent telephone bonds as an investment security. During my banking experience of over twenty-six years I have taken great interest in the different grades of securities which have been offered to the public and the stability of these different securities during times of severe business depression and financial disturbances, and in my own mind have graded the best class of investment securities in somewhat of the following manner:

First.—The interest bearing indebtedness of the national government, which is secured, not only by the entire wealth of the country, but also by direct taxation of the whole people.

Second.—The interest bearing indebtedness of the different states and municipalities, which is secured by direct taxation of the people in these states and municipalities.

Third.—The first mortgage securities issued by public service corporations, which usually take the form of a lien covering all of the property owned or acquired by the corporation.

Taking up the first, or government indebtedness; the amount is so small that it is nearly, if not all, absorbed by the national banks of the country, to be used as a basis of currency circulation, which is profitable to them, although the actual interest return on the bonds is probably less than two per cent.

Taking the next, or state and municipal bonds; the demand for these bonds so far exceeds the supply that the yearly interest return to the investor is, say, from two and one-half to three and one-half per cent; and the average American, unless he be a multi-millionaire, usually looks around him for a larger interest return for his surplus funds, which leads him into the third grade, or the interest bearing indebtedness of public service corporations.

The principal public service corporations may be divided into four classes, supplying the following utilities: Water, light, communication and transportation. In looking over these four classes of public utilities and analyzing the operations of the companies supplying them, we find a great difference, not only in the stability of their income and the mechanical wear and tear, or depreciation of their property, but also in the possibility of accidents in operating, incurring damage and consequent loss to the companies. In water and telephone companies we find the annual rental system, which, for stability of income, could not be improved upon. The mechanical wear and the possibility of accidents in operation are not of sufficient importance to be considered, while the yearly depreciation, in comparison with the original cost, is very small. The same may be said of gas companies, excepting that their income, which is on a measured basis, is more or less affected by conditions prevailing at different periods. In the electric light and railway companies we find a fluctuating and uncertain income together with a very heavy mechanical wear and depreciation, which I fear have not been given sufficient consideration in many companies that are to-day dividing their surplus earnings amongst their stockholders.

The possibility of damage and consequent loss to these companies through accidents in operating is an important item that should be fully considered. In steam railroad companies, the income depends entirely upon the conditions prevailing during the different periods, increasing enormously in good times, and, in many cases, causing extravagant expenditures; decreasing proportionately in periods of depression, without their being able to correspondingly decrease expenses below a certain point. With heavy demands upon its transportation facilities, the mechanical wear and tear is very great, and at such times the depreciation of its property is very heavy. Then again, when its equipment is idle, the percentage of depreciation to earnings is even heavier. Accidents in operating frequently incurring heavy damages, the consequent loss to the companies cannot be estimated in advance.

I am frequently asked the question: What tangible assets has a telephone company to show for its capital obligations? Like any other public service corporation, it is fully equipped to continually supply a practically perpetual and ever increasing demand for a necessary public utility; and while the real assets of the company are not so much in evidence as in the case of a manufacturing or an industrial company, they are, nevertheless, of much greater value, being guaranteed a continual and never ceasing usefulness, if properly maintained. Such questions, coming from men of mature deliberation, are sometimes very amusing. A few days ago, a gentleman who is heavily interested in a prominent steam railroad company's securities, laughingly remarked that a telephone company had practically no tangible assets to show for its bonded indebtedness; and when I called to his attention the fact that the same railroad, in building a new low grade division, was spending in some cases $240,000 per mile, and asked him what the assets of a forty-foot cut in grading the road would be worth to the holder of that company's securities, he began to think, and is thinking yet.

The real value of the assets of any public service corporation is the company's ability to supply the people continually with a public convenience or service which is always in demand; not what you can get for these assets as so much merchandise. In my opinion the safest and most stable of these public service corporations to invest in are the companies supplying such utilities as water and telephony. Their earnings are on a fixed annual income basis, and, unlike other public service companies, their earnings are not subject to changing conditions prevailing at different periods. Both of these utilities are absolutely necessary to our business and social life, and for neither of them can we find a substitute.

Securities issued by steam railroad companies are to-day much in favor with the investing public, and at present the interest return is in many cases as low as three and one-

Paper read at the National-Interstate Independent Telephone Assn. convention, at Chicago.

quarter per cent per annum; yet there are few of these companies that have not been in the hands of receivers at some period during their life time. Like the telephone companies, they are public service corporations, depending upon the people for the revenue necessary to pay, not only the operating and maintenance charges, but also the interest on the money spent in their construction. A thoughtful investor cannot but realize the difference between investing in the securities of a new railroad company and a new telephone company. Railroads have always, of necessity, been pioneers in a new country, the populating and building up process following them; the long period of waiting for sufficient business to pay their naturally heavy operating expenses, leaving them for years without money enough to pay their fixed charges, resulting in foreclosures and subsequent loss in the scaling down process that followed reorganization.

On the other hand, the new telephone company commences business under entirely different circumstances, starting in cities and towns where an actual demand for its service is anxiously awaiting the completion of its property; so that, from the very start, revenue sufficient to pay its operating and maintenance and leave a handsome interest return on the cost of its construction, is not only assured, but the service rendered its subscribers is also actually paid for quarterly in advance. Cities, towns and boroughs continually growing, the demand for local and long-distance voice communication must grow proportionately; and so long as a telephone company can supply the people with a prompt and efficient service, the man who invested in that company need have no fear for the safety of his capital or the annual interest return on his investment. When you consider that the ultimate profit on capital invested in an Independent telephone company is as great in proportion as that made on an investment in a steam railroad company, without the corresponding delay in, or risk of the telephone company's earnings proving insufficient to pay fixed charges and also to make an immediate return on the investment, is it any wonder that, as a safe business proposition, it has attracted capital to the extent of between two and three hundred millions of dollars in a few years without having had to resort to the financial jugglery practiced by the great financiers of Wall Street when capital is required for the construction cost of new enterprises?

Until recently, country bankers kept their eyes riveted on Wall street, thinking that all securities worth investing in emanated from that source. The result of their united buying, together with that of their depositors acting upon their advice, has given undue popularity to an inferior class of securities called "collateral trust bonds," some of which are now selling on a basis of less than four per cent. Prominent New York bankers have gone out of their way to advise their country correspondents to purchase them, pointing out the fact that insurance companies had bought millions of them for permanent investment. The recent investigation of the Equitable Life Company's affairs has made plain to all of us the reason for instilling confidence in the minds of purchasers of such securities. I think that, from now on, the investors throughout the country will give more attention to the first mortgage bonds of companies operating in their own localities; to them I recommend the first mortgage bonds of conservative and well managed Independent telephone companies, which at present prices return from five to six per cent on the investment.

A NEW DEPARTURE IN TELEPHONE WORK.

BY HENRIETTA D. BROWN.

A great many things are being done throughout the country for the benefit of the employes of the operating department, but the Kansas City Home Telephone Company is probably the first to start a Mutual Aid Association.

The necessity of such an organization became apparent when one of our operators, whose parents live outside of Kansas City, was taken ill with typhoid fever. She had had but three months' experience in the work and had not been able to provide for such an emergency. Consequently, it devolved upon her associates to take care of her. This was done, and in order to insure themselves against similar cases in the future, the "Home Operators' Beneficial Society" was organized.

A constitution and by-laws were framed and adopted and officers elected. An advisory board was appointed, consisting of J. J. Heim, president of the company, O. C. Snider, general manager, and Mrs. Henrietta D. Brown, city chief operator, all questions of importance being referred to this board.

Each member pays fifty cents per month, and if ill, receives a benefit of $4 per week. A physician has been employed by the year, and is paid by the society. Any member may call upon him for treatment, either at his office or at their residence, at any time, without charge.

HENRIETTA D. BROWN.

Donations for flowers, when a death occurs in an operator's family, as well as requests of a similar nature, are obviated, such courtesies being rendered by the society.

In order to give the society a financial footing, also to encourage the operators, the writer donated an embroidered table cover valued at $25. This was disposed of by chances, $260 being realized on it. It was then decided to give a dancing party at which the raffle of the table cover would take place. That the dance was a success was attested by the fact that over 600 persons were present.

The society has been in existence about three months, has paid out $75 in benefits, and has $650 to its credit in a local bank. The beneficial feature of the society is not the only one to be considered, as the increased interest taken in the work shows that a different feeling exists. The attendance is better, the discipline is better, and throughout the entire department a change has been effected that cannot easily be explained. We are consequently able to obtain a class of girls above the average, thereby bringing up the standard of telephone work.

DIGEST OF TELEPHONE LITERATURE

Conducted by Samuel G. McMeen.

The Oscillograph—Transactions American Institute of Electrical Engineers, April 28.

GENERAL TELEPHONE ENGINEERING.

In this paper, which describes the device which now enables one to observe or record the form of the wave of rapidly varying electric currents, it is indicated that rather high frequencies may be examined. This being true, it should be profitable for us to determine a variety of things about telephone currents, and, still more important, about telephone transmission circuits, of which the science and the art stand in great need. It was suggested in the discussion of the paper when presented that a received telephone message may be recorded as in a phonograph. Disregarding for the moment the expense involved in such a record, because of the sensitive film upon which the record is made, such a plan has the distinct advantage over mechanical or magnetic phonograph records that the impression may be magnified quite the same as can any photographic impression and perhaps by this means solve some problems of retransmission.

Telephone Infection—Electrical Review, June 3.

It is refreshing, in this period of credulity concerning all forms of minute organic causes of human affliction, that recent tests in London have established, by the guinea-pig procedure, that human beings are not in danger of becoming infected with disease from the mouthpieces of public telephones.

Telephone Engineering at Armour Institute, Chicago—WILDER.—*Telephone Journal, June 10.*

The demand for trained telephone men continues, and the technical schools are gradually taking up the work of training them. The equipment and lines of work, which are both of an excellent order at Armour Institute, are described in this article with illustrations.

Volt Meter Applications—Electrical Worker.

Diagrams of connections with necessary equations for tests involving resistance determinations.

Telephone Ore Location—Telephone Journal, June 3.

A drawing of devices to be used for the purpose indicated, depending upon hearing an interrupted circuit. The exact method of use is not made clear.

San Diego, California System—HIGGINS.—*Telephone Journal, April 29.*

A new Independent exchange with automatic equipment already supplying four per cent of the population, and anticipating an immediate growth to six per cent.

Invention of the Telephone—WEIK.—*Sound Waves, June.*

An address in which it is stated that Daniel Drawbaugh was the real inventor of the telephone.

Future of Telephone Engineering—MCMEEN.—*Sound Waves, June.*

Abstract of an address at the Armour Institute of Technology. It is said that future inventions and discoveries in the telephone art and science will relate largely to a cheapening of the cost of electrical transmission of intelligence. The field of such discovery and invention is by no means exhausted. Many problems remain unsolved, and merit the most careful attention on the part of all who possess interest and ability along these lines.

Efficient Lightning Protection—DOBBS.—*Sound Waves, June.*

The third article of a series, and discusses at some length the theory of lightning discharges. For efficient protection against lightning damage, it is recommended that arrester parts be made not of carbon, but of alloy known as non-arcing metal. Some hints are introduced with reference to the protection of live stock as well as telephone properties from damage by lightning discharge. Also some information concerning house lightning rods and their improvement.

Loaded Lines in Austria—Zeitschrift fur Elektrotechnik, May.

The first line in Austria to be equipped with loading coils of the Pupin type is between Vienna and Innsbruck. These two towns are a little over 350 miles apart and an unloaded line would have required, if of bronze, to have been of about No. 6 Brown and Sharpe gauge, while with the loading coils, wire of about No. 9 of the same gauge would be equally satisfactory. An interesting series of experiments were conducted in which it was determined, as usual, that the line was improved by loading, but that coils at intervals of about a mile and a half were as effective as when three-quarters of a mile apart, as they were placed in the first effort.

Early Independent Telephony—DWIGHT.—*Telephone Magazine, June.*

An illustrated history of Independent effort in Utica, New York, over twenty years ago.

Pneumatic Ticket Distributing Systems—HAWKINS.—*Telephone Journal, June 10.*

TRAFFIC AND OPERATING.

In all but the smallest toll centers it is customary to provide operators whose sole business it is to write tickets for calls which are completed by line operators working at switchboards proper. As any recording operator, as they are called who write the tickets, will in the course of a day write them for practically all of the line operators, it is necessary that the recording group have means of sending the tickets quickly to the line group.

In former times it was customary to send these tickets by girls or boys acting as messengers; then systems of belts, and carriers of other forms were introduced, and latterly a system of transmitting the tickets through pneumatic tubes something as is done in cash carrier systems in large stores. But in the ticket system under description, there is no carrier other than the ticket itself, upon which a flap is bent up to act as a vane to let the air drive it. The tubes are of brass, rectangular in section, can be bent edgewise and flatwise through rather small radii, the speed of the tickets is 25 to 30 feet per second, and they are propelled by vacuum ahead of them.

The First Female Operator—Electrical Review, June 3.

In 1878 there was one woman telephone operator in the world. There are now 65,000 in the United States alone.

Traffic Considerations Should Control Plant Design—ELMORE.—*Telephone Journal, June 10.*

The question as to the proper number of offices, whether one or many, to establish in a large community seems to require rather frequent resettling. It is believed in some quarters that such a problem exists, but is capable of settlement on the basis of obtainable data for each instance. This author discusses the ways of determining the number of positions, the distribution of the lines upon them, and the differences between certain arrangements of trunking between offices.

The Operators' Lunch Room—BURNS.—*Telephone Journal, May 13.*

The custom is growing to train operators before allowing them to do regular work. It is also found wise and expedient to inaugurate and maintain welfare methods in tele-

phone exchanges, and broadly speaking it may be said that the makers of telephone service have never been far behind other manufacturers in this regard. In this description it is said that the lunches furnished to operators cost them but about sixteen cents each, and that the equipment necessary for a quite satisfactory care of operators in a lunch and rest room, costs but about $200.00.

Traveling Telephone Exchange—Technical World, July.

An illustrated note upon an exhibit in a recent Baltimore parade, in which all the representative parts of a telephone central office and aerial plant were carried through the streets.

Practical Management of Maintenance and Operation—STINSON.—*Sound Waves, June.*

The telephone industry is a business of details, and to neglect any is to invite failure. One of the most important truths set down is that friction between the heads of the different departments of the organization is a deadly blow to the discipline of the system and should not be tolerated. The actual operation of the central office should be wholly in charge of the chief operator. The duty of the wire chief shall be to gather information continually for the execution of the immediately subsequent work of maintenance and equipment department, and to co-operate with the construction department where that shall be necessary. Good things in this world are not to be had without effort, and the production of perfect telephone service falls well within this generalization.

Emblem for Independents—Telephony, June.

Suggestions have been invited for a design to be used by Independent companies for signs at pay stations and for general advertising purposes. Eight of them are illustrated in this issue.

Standard Operating Rules—Ohio Association Reports.

The Ohio State Independent Telephone Association at its recent meeting in Columbus received a valuable report from its committee on operating rules. No one who is connected with the telephone business should fail to make a close study of this report, for it is a good example of such law as is required to cover the various human activities in telephone operation.

The organization of the average exchange is specified, all emergency acts are outlined, and the duties of each class of employes about the central office are given in condensed form. Practically every contingency of the daily routine is covered by a ruling, and if all of them are followed in connection with a proper equipment kept in proper condition, a very high grade of service should result. A portion of the report consists of a recommendation of the symbols to be used in the three important branches of switchboard markings. These are the sets to be used on multiple jacks, to enable operators to receive special instructions at a glance; on the lamp caps which form a part of line signals, and on standard monitor plugs which are placed in multiple jacks.

Telephone Traffic Indicator—American Electrician, June.

The Maryland Telephone Company has installed in Baltimore a variation from the usual type of line and supervisory pilot signals. Their arrangement utilizes lamp signals, one red and one white per position, mounted in a group on the wall in full view of the chief operator. A similar but smaller set of signals exists in another room before the service testing operator's position.

Iowa Assessment Law—GUERNSEY.—*Telephony, June.*

A resumé of the development of the existing Iowa law concerning the assessment of telephone companies for purposes of taxation. The paper further contains a discussion of the clauses in this law and the things which ought to be done to establish a more equitable condition.

Exchanges and Rural Lines—The Transmitter, May

An editorial on the mutual business relations of these two phases of the telephone business. It is the feeling of the editor that the ownership of rural lines should rest with the exchange ownership, and in such a case it may be necessary to allow the users of the country lines to pay part of the rental in construction work, or in furnishing their own equipment. But in any case both parties to the matter must keep it before them that their interests are mutual and that they must act in harmony to prevent losses of many sorts.

Telephone Fire Alarm Systems—Western Telephone Journal, June.

An interesting and simple plan of operation for giving information concerning fire locations, in which the subscribers calling for knowledge are advised only of the general location according to a predetermined code.

Telephone Traffic—WEBB.—*London Electrician, May 12.*

A noteworthy paper presented to the British Institute of Electrical Engineers. Mr. Webb is a consulting telephone engineer of London, England, and has had a valuable experience in connection with American practice in New York. He gives due credit to the increased efficiency accomplished by automatic signaling in manual switchboards as compared with magneto switchboards, but points out that much of the increase in efficiency is due to better methods of observation and organization. It is pointed out also that for the reason that the telephone business is one of performing a great multitude of small operations, a saving of a minute time amount in one operation may in the aggregate save a great money value.

Telephone Traffic—London Electrician, May 19.

The text of the discussion which followed the foregoing paper when presented.

Booster Batteries for Trunk Circuits—KLINE.—*Telephone Journal, June 10.*

EQUIPMENT.

Trunk lines between exchanges require to be more than mere talking circuits, as they carry a rather complicated system of signals. Many plans for operating these signals include the use of ground connections. If the city containing the offices uses a single trolley traction system, there will often be a difference of potential between the two earth points. The amount of this difference will vary from time to time, and to offset this it is necessary to use a higher voltage in the signal circuits than would otherwise be necessary. The method of providing the additional potential as described and illustrated here is that of a series of Fuller bichromate cells.

Eight-Party Line System—CLAUSEN.—*Telephone Journal, June 3.*

The first article of a series and describes a system which involves the use of a polarized relay, impedance coils and transformers. The system anticipates the use of a metallic circuit and involves a ground at each station.

Standardization of Equipment—Ohio Association Reports.

The committee on standardization has presented a valuable report. They recommend the common battery system for all exchanges over one hundred lines in case cheap and reliable power is available. They place the limit of size of a non-multiple board at 450 lines. The recommendations throughout are of a high grade and in the right direction.

A Two-Way Trunk Circuit—FRIEDMAN.—*Telephone Journal, May 6.*

Between offices having limited traffic with each other, trunks are required which will work both ways, which are not accompanied by order circuits or call wires, and which require to be rung upon when required for use, quite as is necessary upon subscribers' lines. Trunks of two types fulfilling this specification are described in this article, and illustrated by two drawings.

Fire and Burglar Alarm System—Telephone Journal, May 27.

A note upon the combination of fire and burglar alarm apparatus with telephone equipment. Thermostats on the premises are arranged to set off automatic devices which will ring a loud bell and at the same time remove the receiver from the hook of the telephone. The operator

answering hears the sound and takes the proper action. It is assumed that the burglar alarm feature is accomplished by using window fixtures or electric matting in addition to the thermostats.

Operator's Receiver Holder—TYLER.—*Telephone Journal, May 13.*

It is quite customary to provide operators with equipments which remain individual to them, and which are connected to and disconnected from the switchboard whenever desired. This note illustrates a device in the form of a rack upon which these telephone sets may be hung when not needed for use.

Pictorial Telephone System—Telephone Journal, May 27.

In a single drawing, occupying about one-third of a page, is shown the general scheme of a complete telephone system, with the exception of the substation instruments. There is practically nothing in the drawing which a person reasonably well versed in the art may not understand at a glance, and it is probable that many pages would be required to tell the same story in words.

Making the Deaf Hear—BOND.—*Telephone Journal, May 27.*

An apparatus called the acousticon is intended to assist persons who are hard of hearing in understanding what is said on the stage of a theater or at a speaker's desk in an auditorium. Trials in two churches and one theater in New York have given results which are said to be very gratifying to those who were not satisfied with former results. It is said that such an apparatus worn in its entirety by a person very deaf will materially assist him in understanding ordinary conversation.

Extension Circuits—CLAUSEN.—*Sound Waves, June.*

The concluding installment of a series covering 55 combinations of a central office and two stations. It appears as if no requirement of such signaling might be met in practice which this series will not meet.

Boiler Room Telephone Signal—Telephone Journal, May 13.

A description, with a drawing, of a device which sets red lights when a call is received at a substation which is so noisy that the ordinary bell may not be heard.

Automatic Exchange, Columbus, Ohio—Sound Waves, June.

A description of the usual type covering the cable entrance, power and switchboard equipment of the new automatic system of the Independent company in that city.

Rural Line Systems—TAYLOR.—*Sound Waves, June.*

Practically all rural lines are party lines, and it is probable that they must remain so in the aggregate for a long time. It seems to make little difference at present how many stations are on such lines, so long as the signals are positive. The author describes and illustrates the usual standard bridging system for grounded lines. Switchboards are usually sold equipped with dropshutters, and these in turn are arranged to ring a bell when they fall. In rural line conditions, however, many of the signals are from station to station on the same line, and do not require the central office to answer. For this purpose it is often well to equip the central office ends of rural lines with ringers whether or not drops are used also. If the latter are used they will indicate the identity of the calling line when the central office hears its signal on a bell. If the number of lines be small, different tones of gongs may be used to discriminate at the central office. An arrangement is described in which ordinary use of the telephone sends out alternating current enabling ringing between stations on the line, and in which a button may be held down while ringing, thus sending pulsating current which will signal the central office only. A difficulty encountered in party line working is that when any signal sounds, many stations listen. When many receivers are off the hook, ringing is difficult or impossible, unless the resistance of the telephone bridges be high. This is accomplished with good results by inserting a condenser in series with each telephone bridge.

Concerning Party Line Switching—MCMEEN.—*Telephony, June.*

In systems handling two-party and four-party lines, equipped with selective ringers, and in which the line has as many multiple jacks as there are stations, there will be difficulties of operation in connection with calls from a station for another on the same line. There is described an arrangement by which any such call is identified to the operator by a special busy test so that she will know whether the line is busy because she herself has answered it, or because a real connection exists elsewhere.

The article further treats of selective signal matters more generally.

Manual and Automatic Systems in Co-operation—LUBBERGER.—*Telephone Magazine, June*

In most instances where an automatic system displaces a manual system, it does so entirely, so far as local lines are concerned, the only manual mechanism remaining having to do with switching between local and toll circuits. In a notable instance in Los Angeles, California, however, manual apparatus has been supplemented only in part by automatic, and the plant is operated in a combined manner. The manual portion is of 9,200 lines, and in addition there are seven branch offices equipped with automatic apparatus, these offices having an equipment of from 1,000 to 4,000 lines, making an aggregate of 9,700 automtaic lines, and 18,900 lines in all.

Very naturally, a combination of manual and automatic switching on such a scale as this, involves peculiar circuits, which require the most careful consideration in advance. The article contains illustration and close description of the trunks which are required.

Purdue Telephone Museum—LONG.—*Telephone Magazine, June.*

A description of the Wasson historical telephone exhibit, covering the development not only of electric telephony during its entire life, but an example of an acoustic telephone instrument, seventy years old.

Typo-Telegraph—SWIFT.—*Telegraph Age, June 1.*

A description of the system of Dr. Cardwell, in which, over a special wire, or over a circuit secured by simplex or composite apparatus from a telephone circuit, a keyboard may be manipulated and a message printed in plain characters before the sending and receiving operators. Only three impulses are sent for each character, and these follow each other in immediate succession, and are always of the same length. There appear to be many reasons why such a system is advantageous.

Central Battery Telephone System—Elektrotechnische Anzeiger Cohureich, February 12.

A description along familiar lines, upon a familiar topic.

The Oscillograph—Electro, Paris, February, 1905.

An illustrated description of the oscillograph made by Siemens & Halske under the Blondel principle. The apparatus has been reduced to a very practical form indeed, so that an operator with but little knowledge of the oscillograph, may operate it. The article is illustrated by a number of curves of alternating currents under different conditions of circuit, and contains complete instructions for securing the transitory or permanent images. All oscillograph development is of extreme interest in telephony, for the reason that the next great advance in telephone circuit design must come from an increased knowledge with reference to the circuits now possible to be built.

Telephone Troubles—Telephone Magazine, June.

A tabulated statement of symptoms and causes for failures in substation equipment.

The Telegraphone—London Electrical Review, March 31.

As was true of the phonograph, there has been a period in which the telegraphone of Poulsen has remained a delightfully simple and beautiful laboratory plaything. The instrument now has reappeared in a greatly improved form, which is illustrated and described in this article. It may be

expected that it will be utilized in commerce before many years.

Humming Transformer—*Western Electrician, June 17.*

In a device made by Siemens & Halske, for studying the characteristics of alternating current apparatus, the phenomenon displayed by a transmitter and a receiver in producing a continuous musical tone, is utilized. The compact arrangement of parts is interesting, and will be found useful in connection with certain kinds of determinations relative to telephone circuits and apparatus.

New Underground Cable System—HULTMAN—*World & Engineer, June 10.*

LINES AND LINE CONSTRUCTION.

The last important attempt in the United States to lay wires underground in the country for any considerable length was conducted by Prof. Morse about sixty-five years ago. In Sweden, commercial experiments are under way in which wires are drawn into conduits in the form of cables without sheaths and in which the pairs are held apart by having insulating discs strung on them. The sections drawn in are 1,000 feet long and the low electrostatic capacity is quite gratifying.

Telephone and Electric Light Wires—*Western Electrician, June 3.*

The problem here, which is becoming more and more important, is the relative one of power and intelligence circuits near each other. It is the conclusion of the editor that the higher power wires should be placed at the higher elevation.

Testing for Electrolysis—JOHNSON.—*Telephone Journal, June 10.*

In two drawings and a short note it is explained how to determine where and in what degree underground cables are positive to the earth return of a traction system. It is at such a point as this that the cable is in danger of being destroyed and the cure which this author gives is to bond the cable to the rail return system.

Ground Wires—WILDER.—*Sound Waves, June.*

In an analysis of conditions which exist at the time of a lightning discharge, it is the conclusion of the author that actual ground connection is essential at all stations in a common return wire system. It is becoming customary to furnish all magneto instruments with carbon lightning arresters, and more care should be exercised to see that these are properly connected up.

Multiple Tap Construction—MILLER.—*Telephone Journal, June 3.*

A short description of work of this kind which has lately been completed in Des Moines, Iowa.

Locating Pairs in Cables—EASTMAN.—*Telephone Journal, May 13.*

In order to meet the restrictions which a common battery system places upon wire location the author specifies a system of impressing a tone upon the wire to be found and of picking that tone and conductor out with a minimum of operations and disturbance to other circuits. He recommends the use of head telephones and breast-plate transmitters.

Economical Subway Trenching in Asphalt—TRAVERST.—*Telephone Journal, May 6.*

In Salt Lake City, Utah, during the construction of the Independent system, much asphalt pavement was required to be cut. This was done by power drilling of rows of holes and accomplished a saving, it is claimed, of about two-thirds of the cost as compared with doing the same work by hand.

Ordinary Telephone Construction—ZIETLOW.—*Telephony, June.*

The author cites a number of interesting practical examples to prove his point that telephone construction which fails at a critical time inflicts a damage which the absence of the service altogether would have prevented. He takes a very wholesome view of the need of strength and permanence while not leaning toward extravagance in this or any direction. Care must be exercised in selecting a route for a cross-country line. Holes should be set to a depth of four feet at the least. Not fewer than 25 poles per mile, and from that to 50 should be used. Railroad crossings must be planned with great care, with poles near the track, but not too near, and of a good height. All wires should clear the track by 30 feet. Cross arms, if used, must have space for six pins each, or more, and pins are to be 1¼ inches if locust and 1½ inches if oak. Washington fir arms need not be painted.

As to lines, single wire circuits are recommended except where disturbing elements are found. Iron wires ought to have soldered joints, but the author fears it is not possible to prevent poor ones being made. All pole leads should be thoroughly guyed. He fears that lead-covered cables on poles in alleys endanger the service because of damage when buildings burn.

Telephone Construction Practice—MINHINNICK.—*Telephony, June.*

The fifth chapter of a series. Manhole locations may be said to locate themselves and it is rare that much choice can be exercised. There must be a manhole at or near each distributing pole and one at each point where a branch line leaves the main conduit lead. The thing which determines the distance apart of manholes is the length of cable which can be successfully drawn in, and this of course is governed by the kind of conduit material and the size of the largest cable which it is anticipated ever will be drawn in. The author of this series names the maximum distance as 600 feet, and states that in the existence of the problem of pulling a 500-foot length of 400-pair cable versus building an extra manhole and making an extra splice, he would unhesitatingly do the latter thing. This is because a 400-pair cable weighs seven pounds per foot or more, and while machinery can be rigged to make the pull with ease, the strain on the cable in some parts of the pull may be great enough to injure the core or sheath if the length be great.

Manholes may be built of brick, of concrete, or of concrete blocks. Brick is usually preferred because of the ability to lay it up in any of many desired forms. A plan may be changed at the last minute without harm. Concrete manholes are made by pouring concrete around wooden forms, and there is not so much flexibility for this reason. Concrete blocks share the same objection in some degree.

This installment contains many drawings of manhole forms, with considerable detail information on their construction. The author is of the opinion that double gas-tight manhole covers are bad practice because they do not provide ventilation to prevent explosions. Round covers are objectionable in that they do not hold the skid securely while drawing in. Square covers or rectangular ones have the fault that they may be dropped through the hole upon the cables within. A means of preventing this trouble with rectangular covers is described, as are means of supporting cables on the walls of the manhole, and of rodding the ducts from vault to vault.

Modern Telephony—RADCLIFFE.—*Telephone Magazine, June.*

The fifth article of a series, and treats of poles and fittings. Cedar is recommended for poles under 55 feet, and spruce, pine or chestnut for the taller ones. Cross arms are to be of pine, and the gains for them should be painted. The drawings illustrate methods of guying, guarding and tying.

Uniform Auditing—*Ohio Association Reports.*

FINANCE AND ECONOMICS.

The Ohio State Independent Telephone Association received from its auditing committee a report recommending the methods believed best for auditing the accounts of telephone companies. As is true of the other recommendations of the committees of this association, the work has been done in a masterly way. Under 40 heads of subdivision, in three general heads of expense, all ordinary and most extraordinary causes of disbursement may be found.

Much of the error of Independent operation, and there has been some, is traceable to the newness of conditions in which the operating management has found itself. There

is no crime in this, and it has been true of every other commercial enterprise at some time in its life. One of the healthiest signs in Independent telephony is such effort as is evidenced by the appointment, labors and results of such committees as this.

The Telephone Problem—Canadian Engineer.

The Canadian government is conducting an inquiry intended to place it in full possession of facts with reference to the operation of telephones within the Dominion, and has called many witnesses. Comment is stimulated by publication of the proceedings of the inquiry, and this journal, as well as other technical and non-technical press of the region, contains many references to the transactions.

The Telephone in Mexico—BROOKS.—*Sound Waves, June.*

Some comment on the business conditions of Mexico, and the differences between probable telephone development there and in other American countries.

Advertising the Telephone—STEEL.—*Printer's Ink.*

A delightful article with eight examples of display advertising from the standpoint of a man who has tried it and found it successful. The experience described was in Philadelphia.

Co-operative System in Finland—BERGH.—*Telephone Journal, May 20.*

In Finland, as in some other foreign countries, and in the mutual phase of the business here, one pays a fixed entrance fee for the privilege of being connected with the central office, and after that an annual amount for the service. While the system described in this article is relatively new it is of the magneto local battery type.

Telephone Rates in Europe—GRADENWITZ.—*Telephone Journal, May 6.*

The first article of a series, and treats of the telephone rates in Germany, where the service is furnished by the government. One must secure written authority from his landlord before receiving telephone service in a rented house. There are many special restrictions not usual in this country, night service is not contemplated, and either flat rate or measured service may be bought.

Telephone Rates in Europe—GRADENWITZ.—*Telephone Journal, May 13.*

The second article of a series, and continues a consideration of German rates. The lump sum per year varies with the number of subscribers in the exchange, and is changed from year to year as growth takes place. The fee per call is 1¼ cents.

TELEPHONE TALKERS.

"'Pay-station' telephones are increasing in number and this fact is easily explained," said a merchant. "In drug stores, hotels, restaurants and other places accessible to the public, many people drop in to use the telephone when it is free, but when a toll of five cents is exacted the number is comparatively small. I have known persons who spend money freely to walk a block or two to get at a free telephone rather than drop a nickel in the slot at a pay-station.

"The pay-station is doubtless fairly remunerative, for some people patronize it, but whether it be profitable or not, it shuts out the multitude and rids the merchant of the 'long talk' nuisance. It is surprising to find so many inconsiderate people in the world. Every well disposed person who rents a telephone should be glad to oblige a man or woman in case of emergency, but it is safe to say that a majority of those who ask and receive permission to use the telephone consume a great deal of time unnecessarily. Ordinarily they could transact their business in thirty seconds, but often they talk for several minutes. This is what I call inconsiderate on the part of the obligee, for a patron of the store may be trying to 'call up' or the head of the concern may himself be impatient to use his telephone.

"One of the few pharmacists having a free telephone has posted this notice: 'The public is welcome to use this telephone, but persons availing themselves of the privilege are requested to cut their talk short; otherwise they will be interrupted and asked to quit.'

"It would be a good idea for the telephone companies to have little slips printed and furnished to their customers to be pasted on the telephones. One night recently I was in a cafe. A young man, not a patron of the place, was using the telephone by permission. When this fellow concluded his talk he put up the receiver and walked out. The proprietor exclaimed: 'Well, that was the limit! That man used the telephone in a social conversation exactly twenty-two minutes by the clock, and never even thanked me. The long-winded telephone habit is becoming intolerable.'"

USE OF TELEPHONE BY REPORTERS.

"If anything happens, jump to the nearest telephone." That maxim, if a book of rules for newspaper reporters is ever compiled, will be Rule 1, says the New York Tribune. The newspaper man to-day wonders how his paper got along before the telephone came into general use.

On some of the New York evening papers there are reporters of the regular staff who do not see the office for weeks, or even months, at a time. Their salaries are sent to them by messengers. They receive their assignments by telephone, and after getting their stories they telephone the facts to the office. If the story is a particular "rush" affair the reporter dictates into the receiver to the man in the office, who raps it off on a typewriter. Such a reporter's tolls may amount as high as forty or fifty "calls" a day. Some of the papers have a rule that every reporter must call up the office once every half hour, whether there is any news to be given or not. Thus a city editor may keep constantly in touch with fifteen or twenty men "on assignments" and is able to take a man from a comparatively unimportant assignment and send him "on the jump" to the scene of a "big story."

The telephone is furthermore invaluable in a newspaper office in obtaining long-distance news in a hurry. It often beats the telegraph.

The city reporter looks for a telephone in a sudden emergency as a starving man looks for bread. A reporter will almost "break and enter" to get at a telephone if the matter is hot enough. Not many months ago a reporter of a New York evening paper was sent out in the early morning to cover a local railway accident. When he got on the ground he saw at a glance that the story was a big one; several cars were smashed up and a number of bodies were removed from the wreckage. The other papers were ahead of him and each had several men already on the ground. He visited in rapid succession one telephone in a cafe, one in a milliner's shop and one in a drug store. All were in use, with other men standing in line before him. In the drug store he learned that a woman who occupied a third floor apartment above had a private telephone. He dashed upstairs and rang the doorbell until a frightened maid appeared.

"I want to use your telephone," he announced pushing past her. Through a curtain he caught sight of the familiar wooden box in another room and dashed in unceremoniously. Two elderly ladies in a big mahogany bed greeted his appearance with shrieks of "Burglars! Murder! Police!"

"Calm yourselves, ladies," he said, taking the receiver, "I'm not—Hello, give me 2,000 James—I'm not a burglar. It's all right. There's been an accident outside and I—Hello, give me the city desk, please!—I merely want to telephone to a newspaper. Sorry to disturb you, but—Hello, this is Smith. This is a big story," etc.

National-Interstate Telephone Association

JAMES B. HOGE

THE National-Interstate Telephone Association is convened to-day for the first time. This, however, is the ninth year for the Independent telephone interests of the country to come together in convention. Each year has shown them stronger and better equipped to handle the business intrusted to their care. The results of this meeting will indicate in a measure only our strength to-day, due to the fact that we are not yet fully organized.

Nine months ago, at a meeting in St. Louis, the National Independent Telephone Association amended its by-laws so as to form a more perfect organization. The convention was scarcely over before it was suggested from many sections of the country that a consolidation between the National and the Interstate associations should be effected. In December the Interstate Independent Telephone Association had its meeting. A committee was appointed to meet with the committee that had been previously selected by the officers of the National association, and on January 19, 1905, a consolidation was agreed upon and a constitution adopted. Since that time the committee-in-charge has been doing what it could to bring about a better organization.

The year has recorded the death of the Hon. James M. Thomas, former president of the National association, and a prominent figure in association work. It has been one of active work for the Independent companies. A number of new franchises have been secured, and others are pending, among them being San Francisco, California, Spokane, Washington, Nashville, Tennessee, New York city, and a number in New England and elsewhere, everything now indicating that exchanges will be built in the near future in the few remaining cities where our competitors have had a free hand to manage the business as seemed to them best, and to charge fabulous rates to assist in carrying on warfare in other cities where they had competition, by giving away service.

A number of the manufacturing companies supplying the Independent companies with equipment have built new factories, while other factories have been enlarged so as to enable them to take care of the growth. Many consolidations have been made between companies in counties and states that were so situated as to enable them to operate with greater economy on a consolidated basis. Each state that has an organization has in nearly every instance been divided into districts, which have subdivided their territory between members, who are fully developing the same. Statistics have been gathered, which will be clearly shown at the roll call of states.

Following out the plan of our constitution, committees have been appointed on the following subjects: Standard Forms of Accounting; Standard Operating Rules and Regulations; Standardization of Equipment; Best Methods of Advertising; Arrangements Necessary Between Operators and Manufacturers to Protect Independent Companies. These committees will report the results of their work to this convention.

There never was a time when the operators, manufacturers and others having interest in the Independent telephone development appeared to be so closely in touch with each other or to feel the importance of standing together as at present. It is of importance to all that we form a closer union; that we work out all economies possible; that we pool our interests and assist each other. An old proverb says, "Though you are bound to love your enemy you are not bound to put your sword in his hand."

During the month of May the International Railway Congress held a convention in Washington, which was largely attended by representative railway men from the principal civilized countries of the world. Some of the addresses given there apply with such force to the transmission of messages and conversations by wire that I feel they can be quoted for our benefit. The vice-president of the United States, Hon. Charles W. Fairbanks, in his address of welcome, spoke in part as follows:

"The railway is a mighty instrument of our modern civilization. It is essentially a creation of modern times. There are many men living to-day who were born before the construction of the first railway either in England or the United States. Its development has been one of the marvelous evidences of human progress in recent times. It was created to meet an imperative demand; it was created locally to meet local conditions, but it has expanded until it binds together remote industrial centers; it has brought the capitals of the world nearer together; it has crossed and recrossed continents; it has become an artery over which passes the commerce of the world; it has inextricably woven into the social, the commercial and the political affairs of millions and millions of the human race. It has not only rapidly and vastly increased its mileage, but it has developed wondrously in the character of its construction and in the methods of its operation. Inventive genius, labor and capital have been employed continually devising new means of increasing its efficiency and adapting it to the increasing requirements of trade and commerce. Science and art, labor and capital, have wrought a revolution. The work of construction and reconstruction is unending. The roadway terminals and rolling stock suited to the needs of yesterday are inadequate for the necessities of to-day, and still larger provision must be made for the imperative requirements of to-morrow. The universally urgent and imperative demand has increased carrying capacity at a minimum cost of maintenance and operation. Hand in hand with this goes the demand for low rates for transportation."

Does not every word of the foregoing apply with equal force to the wire development of the world? There is no wire-using company that has shown the strength in so short a time that the Independent telephone movement has shown in the United States. Other addresses made at the Railway Conference showed that the United States has at all times since 1860 had more railway mileage than all of Europe, the average cost of the railways of the United States being $63,168 per mile, while the railways of Great Britain cost $270,476 per mile.

The amount of capital invested in the Independent telephone field is only about sixty per cent of what their competitors have to represent the same number of units. This has been made possible by our entering the field after much of the expensive experimental work had been done, and due to the fact that the work was done more economically because of local influence being able to get many privileges that a foreign owned corporation could in some cases not get at all and in others only at extravagant prices.

The increased tonnage carried by the railways in the United States in 1903 over that for 1889 was 152 per cent;

Paper read at the National-Interstate Independent Telephone Association convention, at Chicago.

the number of passengers carried in 1903 compared with those carried in 1889 showed an increase of eighty-one per cent. The railway was first installed on a commercial basis in Great Britain in 1820, the telephone in the United States in 1876, the telephone being handled exclusively by the original inventors until the patents expired in 1894, when the Independents entered the field; then it was that the American people commenced to reap the real benefits from the invention. It has been greatly improved upon since and to-day the Independent companies are operating a majority of the telephones in the United States, the total number of telephones having increased between 1894 and 1904 over 1,500 per cent. In some states the growth has been even greater. Is it any wonder that it has kept us all busy financing to keep up with the growth. The number of passenger and freight units carried by the steam railways has increased in fourteen years 141.8 per cent, the telephone units in the United States in ten years over 1,500 per cent, or more than ten times the increase of business of the steam railways. The railways had to help develop their original business. Telephone business developed itself for the Independent companies.

It is frequently urged that the trouble with the telephone business is the enormous growth it has each year. The telephone business, like every other business, will reach a limit of development; after that time the system will grow as the territory that it serves grows, which in many cases can be taken care of from surplus earnings after paying dividends, but that point will not be reached until you have fully developed your business just the same as well-organized street railway and gas companies have always aimed to do. After that it is a matter of putting on more cars and extending a track here or there, laying a few new mains and setting new meters connected to existing pipe lines. That business can all be made profitable. There is also going to be an opportunity to do many things that might be called a by-product, such as furnishing fire and burglar protection.

The engineers designing our apparatus and the manufacturers producing it have been constantly improving the service and have made it possible to give the best service to be had at a minimum cost for construction and capable of being operated at a minimum operating expense.

The German ambassador in an address at the International Railway Congress, said in part:

"It has been frequently emphasized by the leaders of nations that the chief thing the world needs is to have its peoples know one another. The great problem has been, and still is, how to bring them together and how, successfully, to interpret their national characteristics. As long as we fail in accomplishing this, mutual suspicion and latent dislike will continue and a civilization will be the sufferer. The policy of two nations has been compared with the attitude of strangers in a dark forest. The moment one touches his pocket, the other answers by cocking his pistol, and as the click of the hammer is heard, the first one blazes away. The whole relations of nations must be based on mutual confidence in the same manner as that of individuals. This confidence is a rare and most precious possession. It is the highest prize for which nations and individuals can strive. This year stands out in history because in no previous year has any country accomplished as much as the United States in drawing the world more closely together. Scarcely has the great congress of nations closed at St. Louis when the city of Washington opens its hospitable gates to welcome more than a thousand delegates of all nations that have been invited to participate in this Congress of Railways."

Have not the telephone, the telegraph and the great cable companies done equally as much as the transportation companies to bring about this ideal condition of civilization? Important events are wired all over the world in a few hours. The Lake Carriers' Association of the Great Lakes, formed about twenty years ago and representing at that time many hundred owners of vessels of all types and sizes, to-day represents a gross tonnage of over 40,000,000. In 1903 the association incorporated under the laws of the state of West Virginia with a nominal capital, employed certain officers to give their entire time and attention to the association work. They have worked hand and hand with the government in deepening the channels, removing obstructions in harbors and elsewhere, have agreed upon certain standards, successfully fought the railroads in building bridges across the rivers at Fort Huron and Detroit, and one member told me a few days ago the subject was now up with the government in regard to a new lock at the Sault Ste. Marie that would accommodate boats with a carrying capacity of 20,000 gross tons. He also stated that the terminal dock companies and the vessel owners had co-operated in designing and standardizing dock machinery and boats so as to load, unload and trim the boats in the shortest possible time and with a minimum number of employes.

Japan in her war with Rusisa has shown us the benefits of proper organization. The Japanese army and navy have beaten the world on organization. Their opponents have from the start been hopelessly lost, due to their lack of organization.

It looks as ridiculous for an Independent company to flirt with the Bell company for sale or an alliance as it would for Admiral Togo, after he and his forces had practically annihilated the Russian navy, to propose to one of the Russian agents the annexation of Japan to Russia upon the verbal assurance of the agent that Japan would get a fair deal.

How can we help each other and at the same time benefit ourselves? The Independent companies have in the past met and overcome all obstacles placed in their way. They can be depended upon now. Do not get weary in well-doing and follow after strange gods who make promises to do all sorts of things under the pretense of being greatly interested in your welfare and *desirous of seeing you protected,* before all the other Independent companies in your county or state are wiped out of existence by their giving away service or by purchase. We have heard practically every argument that can be enumerated by the combinations possible to be made by the twenty-six letters of the English alphabet, and yet nothing worth mentioning in the way of permanent damage to our cause has been accomplished. In a few instances the opposition has made it necessary for the local people to get franchises and build new exchanges for their own protection and to benefit and connect their new properties with the Independent system, a few of the notable places being Toledo, Ohio, where the Independent company was purchasd by the Bell company in the late nineties and operated by them as an Independent plant for some three years. During that time they took city councils there from all over the country to show what a horrible thing duplicate telephone service was and how the Independent company was unable to succeed with Bell competition. A new Independent franchise was granted and a plant built, which to-day is operating over 9,000 telephones, while the Bell company has thrown away the plant it purchased and has about 4,000 telephones left in its original exchange. I might also cite South Bend, Anderson, and Muncie, Indiana, and a number of places in Illinois and other states. An old German proverb says, "One should not believe any enemy, though he tells the truth."

The Independent officers and stockholders have for years been making the claim that there would be two great telephone companies the same as there are two telegraph companies. Did it ever occur to you that we are fast approaching the realization of that prediction? To-day we have almost a continuous system from the eastern slope of the

Rocky Mountains to the Atlantic Coast. True, we cannot talk from western Nebraska and eastern Colorado through to Philadelphia and Baltimore on the east, but on the other hand our competitors are only promising to furnish that service at an early date through new apparatus their engineers are working on. There are engineers in the Independent field who claim to have solved the problem that will enable us to do even greater things. Whatever the final results may be you can rest assured that the numerous engineering corps of the Independent manufacturing companies augmented by a number of strong outside engineers, together with a large number of operating engineers, can be depended upon to more than keep the Independent companies abreast of the times.

We have found in Ohio that it is comparatively easy, where necessary, to readjust rates. The public can be depended upon to do the fair thing if they are given value received and are told what is fair. We have also found that many of our companies were neglecting certain business that could be handled at a good profit, as much of the work necessary had already been done to take care of the increase. One company of over 2,000 subscribers I have in mind has, without increasing its investment over $20,000, increased its net earnings over $9,000. This increase in net earnings made a net profit of over four per cent on its common stock. Now this was not done without careful thought on the part of the management, the same as the manager of a manufacturing company, bank, mercantile establishment, or any other branch of business is compelled to do in order to successfully handle his business. The gas companies, the steam railway companies, and many other of our public-serving corporations during the past fifty years have had more difficulties to contend with than the Independent telephone companies have had to take care of their part of the 1,500 per cent of gain in the past ten years. What has been the financial history of those who stood by the securities of the other public-serving corporations? In practically every case they have made a larger per cent of profit.

Do not give your service at less than cost, but give it at an honest per cent of profit. I heard of a steam railway company some days ago that had been charging $1.75 for round trip between two given points, when an electric line paralleled them between these two points and made a rate of $1 for the round trip. The steam railway company then cut its round trip rate from $1.75 to 75 cents, but the electric line continues to get the business, as the people appreciate prompt service and remember the rate made by it, paying no attention to the cut made by the old company as a war measure.

It has been impossible for your committee to visit all the state associations or to do a number of other things that would have been productive of much good. The executive committee felt that it was wise to hold expenses down to a minimum until after a convention could be held in regular form and then the matter could be presented for your careful consideration. Each delegate here is intrusted with the responsibility of his respective state as to the outcome of the organization in the future. It will be but a short time before we will be able to talk over our system from Texas and the other western states to Philadelphia, Baltimore, New York and New England points. Are we going to be prepared for it? The committee appointed must consider all of these problems and each delegate should give due consideration in acting upon the reports presented. We represent over 500,000 stockholders to-day, who with their families and friends, together with our employes, compose a vast army that no power on earth can defeat if we have proper organization.

What would have been the result if President Lincoln had listened to all the reports made to him about disloyalty in his army? Then why should we distrust our neighbor because some agent of our competitor tells us by word of mouth or through one of their new bureaus that he is not a loyal neighbor? Go and talk with him. When President Lincoln found a traitor in his camp he immediately court-martialed him and dealt with the case as the facts seemed to warrant. The Independent companies can be trusted to do the same thing. There is strength in proper organization. At the signing of the Declaration of Independence Franklin said, "We must all hang together or we will hang separately." Are we prepared to form an association similar to the union formed when that now famous Declaration was signed?

"A song for our banner the watchword recall,
Which gives the Republic her station,
United we stand, divided we fall,
It made and preserves us a nation."

WISHES TELEPHONE PLACED AT GRAVE.

A telephone by the side of her relative's grave is what a woman in Columbus, Indiana, who believes in spiritualism, contemplates. The surprise of the officials of a local telephone company can be imagined when a woman called on them and asked the cost of placing a telephone at the head of the grave of a relative, who died some time ago. The woman is a firm believer in spiritualism, but she does not think she can talk to her departed relative unless she is at the grave. She has made frequent visits to the cemetery and says she has carried on conversations with her dead relative.

She is a busy woman, and as the cemetery is some distance from her home she adopted the telephone idea, and asked for an estimate on the cost. It is her intention to have the box placed on a short pole at the head of the grave, and she thinks the spirit of the dead one will answer when she rings up. It has been pointed out that the spirit of her relative might not be the only one to use the telephone, and that the shades of persons with whom she was not acquainted in life might call and give her a shock.

FIRST FLOATING TELEPHONE IN WORLD.

The first floating telephone in the world has been installed in Great Salt Lake of Utah. Three thousand feet from the Saltair pavilion, where the average depth of the water is more than four feet, the telephone has been placed on a buoy. The buoy is anchored and it is possible to talk through this telephone to any city or person on the system.

The primary object of the installation is the saving of life. There have been times in the past when a telephone in the lake would have been the means of rescuing venturesome bathers. The management of the Saltair pavilion and the telephone company feel that if one rescue is made the expense incident to the installation will be more than justified.

The buoy telephone's first connection was with the private branch exchange at Saltair. An operator is constantly in charge of this station so that it is possible to call from the lake to any point in Salt Lake City or about the pavilion where the instruments connected with the branch exchange are to be distributed. The sensation of floating in the water and holding conversations with individuals many miles away undoubtedly will appeal to Saltair visitors this summer. It will be a distinct novelty.

The farm telephone costs about $25 per mile to put up, which sum includes one telephone instrument complete. A ten-mile line reaching ten families would thus cost $250. To this may be added $10 for each additional telephone on the circuit. For the money thus invested no greater convenience is within reach of the average farming community.

Maintenance of Underground Structures

JOHN M. HUMISTON

IN a paper on underground electrical construction presented at the International Electrical Congress at St. Louis, L. A. Ferguson said: "Underground lines require much less attention than overhead ones, but it is a mistake to suppose that when lines are once underground they will take care of themselves. There is always a chance for trouble." My experiences in maintaining a plant twenty years old have led me to believe that current repairs receive less attention generally, than is given to initial installations, that they often are done hurriedly and that such treatment applied several times in the same place, creates a situation which will ultimately cost much more than would

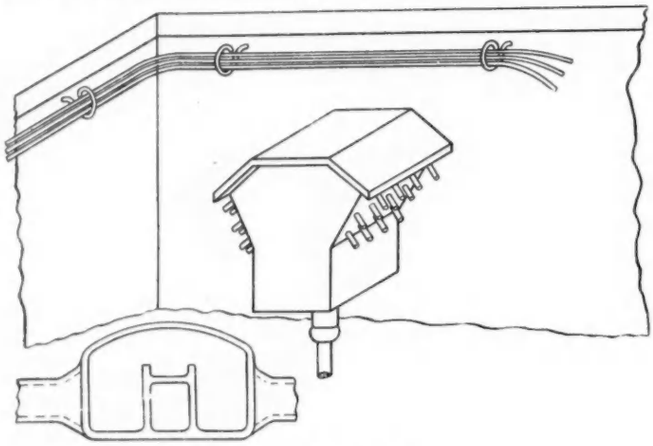

FIG. 1.

careful consideration and workmanship for each and every change.

As many features of construction encountered from time to time, have interested me from the standpoint of daily expense, I will mention them, even though they might be considered questions of design rather than of maintenance.

TELEPHONE DISTRIBUTION.

In the distribution of conductors to the subscribers' premises in an underground telephone system, there are three different classes of construction. The first class includes those cases where a number of conductors are taken directly to a large office building and the separation of the cir-

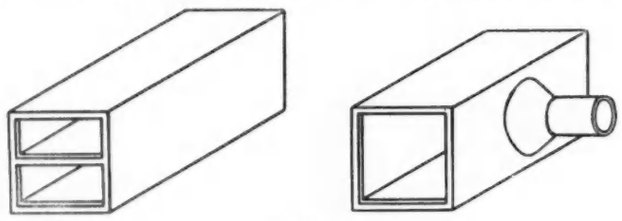

FIG. 2.

cuits is entirely and satisfactorily handled in the wiring of the building.

A second class includes those situations where the buildings are of a character which would not warrant the first-class of construction and where it is still necessary to reach the subscriber's premises without having aerial wire.

The third class includes the distribution by means of an underground conduit to the interior of a block and a separation at that point into different aerial circuits to the subscriber's premises. This is the most common form of distribution and in a great majority of cases the most satisfactory.

The first class of distribution requires no comment, save that the building plans should be carefully scrutinized before the terminal is located. This, of course, is to avoid the necessity for the repair man crawling under the elevators being close to any flying belts, or being in an uncomfortable

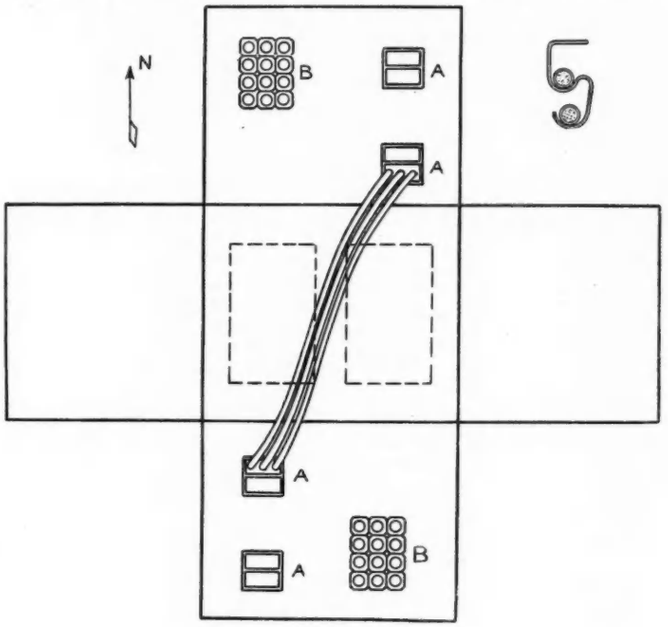

FIG. 3.

position when he is doing his regular testing. Great care should be used in interviewing the owner or tenant concerned, so that subsequent changes will not require moving of the terminal. The cabling in the basement of the building should avoid electric light wiring or appliances, be done in as neat and workmanlike manner as is possible, and no

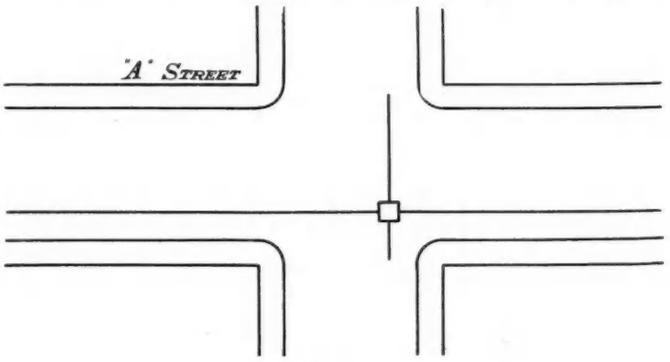

FIG. 4.

part of it should be disposed with the notion that such parts would never require subsequent inspection or withdrawal. It should always be placed so that there would be a minimum temptation to the occupant to hang shovels, mops, or hot stoking-irons upon it, or to use it for supporting any article of furniture.

Paper read before the American Industries of Electrical Engineers, at Chicago.

I once found in the basement of a restaurant, a cupboard in which were kept the heavy earthenware dishes peculiar to a lunch counter. This was largely supported by the cable, and the weight had pulled the cable down, resulting in some breakages, the loss of which the company owning the cable was asked to stand.

In the second class of distribution, there have been a

FIG. 5.

number of methods employed. The best, that known as the Johnston method, is widely used in St. Louis. Fig. 1 shows a cross section of the tile employed in those sections of the conduit system where a subdivided distribution to buildings was desired. At frequent points on either side were outlets to the different buildings. These outlets were designed so that there were no sharp corners to resist the passage of the wires. The upper middle duct was used for rodding; the lower middle duct was used for carrying the main cable. In the vault a terminal was placed with its top against the roof. This terminal had its entire capacity in conductors led out from the top in twisted pair rubber covered wires in separate small lead sheaths. The end of this lead sheath was sealed by a brass cartridge soldered on. The connections were made to the different houses with these same rubber and lead covered wires. To draw the wire into the house, a man entered the basement and fished out to the conduit. The man in the vault ran a carrier through which straddled the lower middle duct. This carrier conveyed a wire on the proper side which was caught by the fish wire in the hands of the first man. In this way, a connection was established and the lead wire pulled in. It was then spliced onto one of those protruding from the terminal and the outside armor soldered up, giving a continuous cover. In the vault the lead wires were passed through enameled iron open screw eyes, fastened in the corner made by the side and the roof of the vault. The terminals employed in this installation carry about twenty-five pairs of wires, and are placed at frequent intervals so that they generally adjoin the section of conduit in which the subscriber's outlet is located. This installation has given excellent satisfaction, owing almost entirely to the care used in its design and construction.

Another method of providing the same kind of distribution has been used quite widely, employing a conduit section of vitrified tile ten inches square and about three feet long, this tile having a horizontal partition dividing it into two passages of equal area. At points where it was desired to make an outlet to reach the subscriber's premises, a piece of tile with the horizontal partition omitted and with an extended opening in the side to fit a three-inch tile, was used. The joint between this three-inch tile and the flat face of the main tile is curved so as to offer no difficulty in pulling wires. (See Fig. 2.) The cables were terminated in the vault on contacts mounted in the diaphragm dividing a cylindrical cast iron box into two parts, the diaphragm being at right angles to the axis of the cylinder. The cables were fastened to the contacts back of the cast iron diaphragm and the separate distribution wires were fastened in front. The contacts where they passed through, were insulated by hard rubber bushings. The cable entered the back of the box through a brass nipple and was sealed by a wiped joint. The front and back of the box are bolted to lugs and fit down over soft rubber gaskets, effectually sealing the chambers before and behind the diaphragm. From the front of the box the separate wires are led out through goose necks, these being filled with paraffin.

This method of distribution, while not so neatly designed and so perfect in all particulars as the preceding method, would still give good satisfaction if measures were taken so that there would not be too many single wires in one section of conduit. This could be accomplished, of course, by a greater subdivision of the terminals, which would be somewhat expensive with a terminal of this construction. The principal differences between the two systems lie in the subdivision of terminals, in the absence of interference by

FIG. 6.

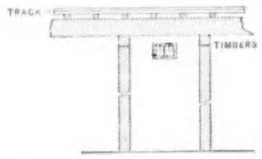

FIG. 4.
Cross Sectional End View Showing Conduit Passing Between Timbers.

CHICAGO TELEPHONE CO.

View Showing Plan of Proposed Conduit Through Embankment or the C. & W. I. R. R. at 48th Ave. and Alley North of Madison St.

FIG. 3.
View Showing Arc A B C. Scale 1″-1 Ft. To Show Gaps Between Lengths of Conduit. This Gap is 168″ for Top of upper Shelf, and .084 for Bottom of Upper shelf.

FIG. 2.
View of Arc C D E. Scale 1″-Ft. to Show Gaps between Lengths of Conduit. This Gap is .18″ for bottom of Lower Shelf and therefore .09″ for bottom of Upper Shelf.

FIG. 1.
Arc A B C has A Radius of 54.5 Ft. Arc C D E has a Radius of 51 Ft. The Conduit Enters Vault about 2′ from Ground Line, as shown at "F". Vaults are Type "A" as Included in "Specifications" of Circular Letter No. 168. Scale .4 in. Ft.

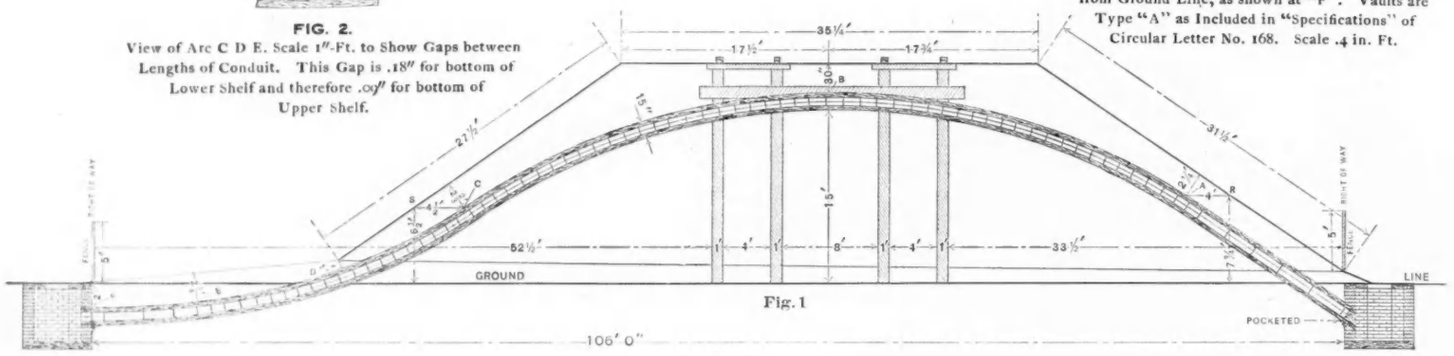

Fig. 1

FIG. 7.

duct rods with working wires, and in the facilities afforded by the first system, but not by the second, of entirely isolating those wires feeding to the right of the conduit line from those feeding to the left. The first system offers a slight advantage over the second in the greater ease with which the man fishing from the house trap, could establish a connection with the man in the vault.

In the second method the tendency was toward having a few large terminals and running long lines of single pairs to reach them.

MOVING OPERATING CENTERS.

An important phase of the underground situation in a large city, is the changing from one central operating point to several inter-connected central operating points. This is brought about generally by extremely rapid growth. The necessity arises in many cases of making additions to existing conduit lines. The enlargement and change in shape of vaults to provide for the disposition of cables at intersections of conduit routes, and where the cables enter the operating station is a difficult problem.

In Fig. 3, which represents diagramatically a vault, the four sides being laid flat with the bottom, for convenience, we will suppose that line "AA" was first laid; going south from this vault near the west wall, and going north from it near the east wall. It is desirable to lay twelve more ducts along this street. Generally speaking it will be preferable to lay a new line with new vaults on the other side of the street. In this case, certain features of underground piping make it necessary to use the same side of the street and the same vaults and build the line as shown "BB." It is apparent that the original installation of cables will be crossed by those subsequently installed in the added ducts. This makes a very unfortunate arrangement. It is desirable to have the cables so that they will not be under the manhole, and generally we need two manholes in a vault of this character. In such a case the original installation of cables would be placed on hangers low down on the sides of the vault, and such additional cables as we could not place on hangers on account of the shallowness of the vault, would be carried on roof hangers, each hanger being designed to carry two cables. (See Fig. 3.) This afforded the most inexpensive solution of the problem.

In certain cases, as illustrated in Fig. 4, it is a measure of economy to lay an unconnected portion of conduit to be completed later. In 1901 a conduit was laid on "A" street in advance of re-paving. At the intersection, it was proposed subsequently to extend a heavy line of conduit in the cross street, the conduit to the required number of ducts was laid across "A" street, connected into the vault so that

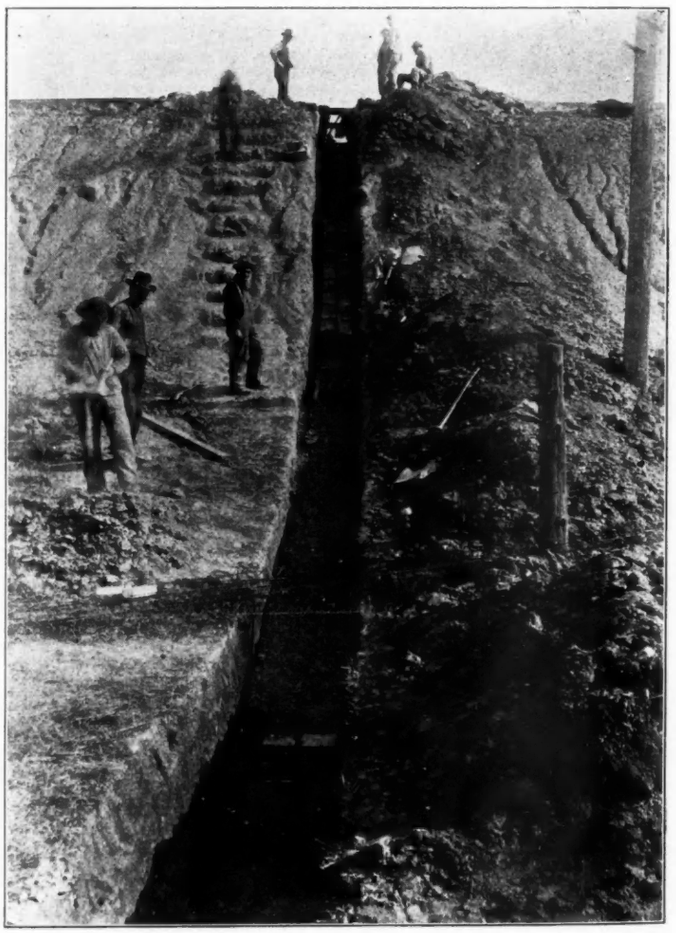

FIG. 8.

when the line in the cross street was subsequently laid, connection could be made and the line would be complete. In this case a round pipe conduit was used in the original installation. When the time came to lay conduit in the cross street, multiple duct tile was the most available material. To dig up the street intersection and lay tile complete into the vault would be a great expense. One alternative of making the connection through vaults on either side of the intersecting street was likewise a costly solution. The problem was solved very cheaply by making mandrels, one end of which fitted the square tile, while the other end fitted

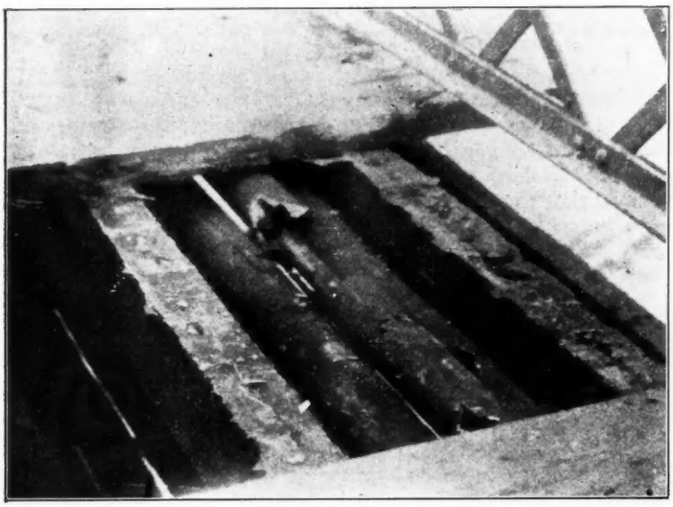

FIG. 9.

the round pipe. These tapering mandrels were coated with a mixture of castor oil and graphite and put in place and the duct walls finished by filling the spaces with cement mortar. (See Fig. 5.) After this mortar had set, these mandrels were drawn out through the ends of the tile leaving a concrete passageway connecting the two pipes and holding them in position.

LONG CONDUIT SECTIONS AND BENDS.

It is generally considered best to have ducts in a straight line except a slight bend over a summit between two vaults. For main line conduits approved practice sanctions the spacing of vaults on approximately 400 feet centers. In cases where it is unnecessary to secure taps within a distance greater than 400 feet, and no extraordinary street obstructions intervene, it is entirely feasible to locate the vaults so that the conduit sections will be in lengths up to 800 feet. The employment of sections of such length has these items in its favor: Fewer vaults, therefore, fewer points for trouble; less fixed expense on account of the decreased cost, because both vault and cost of making splice are eliminated; greater simplicity of plant and also of records.

It also has disadvantages, as: Deeper trench to get necessary grades; more competent men and better tools; putting more money in emergency cable; greatly increased expense if the section of cable does get in trouble.

In spite of this showing I think that in many cases long sections are the best construction, and that there should be a tendency in the future in this direction.

Fig. 6 shows a section of conduit 882 feet in length with two reversed curves or offsets in it. The cable that was installed in this section of conduit was pulled in with ease. A slight offset near the end from which the cable is pulled, when each curve is of sufficiently long radius, does not cause the cable to bind to any appreciable degree, and is of sufficiently good construction to make such a measure preferable to the expense of constructing a vault. In a short section of conduit, say in lengths up to 100 feet, it is possible to have quite sharp bends. I know of one such sixty-degree bend of twenty-one feet radius. It was laid of multiple duct tile in thirty-inch lengths; on the outside the gaps at the abutting ends were one-half inch across, the total length of the section being fifty feet. This bend has never given any trouble to the cable men. It was not possible to rod it with the regular hickory duct rods, but being so short it was easily threaded with a No. 9 iron wire.

Fig. 7 shows a section of conduit laid between two vaults, on either side of the right-of-way of an elevated steam railroad. This was part of a line built in an alley. The route was chosen to avoid opening pavement on a street, and the obstruction illustrated was the only disadvantage of the alley route. One of the curves shown has a radius of fifty-one feet and the other a radius of fifty-four feet. The gaps between the edges at the tile joints are approximately one-sixth of an inch. The cable was pulled over this seventeen-foot hump with ease. Such a crossing affords a comparatively cheap method of overcoming such an obstacle. It is only necessary to see that an extra heavy concrete envelope is placed around the conduit and to use care in setting the tile. Fig. 8 shows the construction of one side of this section. These examples are sufficient to show that where conditions require, long and somewhat crooked sections are permissable, thus saving not only in first cost but in maintenance.

CORRODED IRON PIPES.

It sometimes becomes necessary to extend conduit along overhead structures such as viaducts and bridges. In these cases it is best to use iron pipe. These should be placed so that they are accessible for painting and repairs, and should be kept thoroughly painted and repaired. They should also be provided with expansion joints. At any point where they are subject to the corroding action of locomotive gases they should be afforded some additional protection. Fig. 9 shows some three-inch wrought-iron pipes on a viaduct at a point right over the middle of a railroad track. These pipes had been in place from seven to twelve years. One of them it can be seen is almost entirely destroyed.

PULLING CABLES.

In the summer of 1904 R. S. Pierce made some experiments to determine the amount of power required to pull

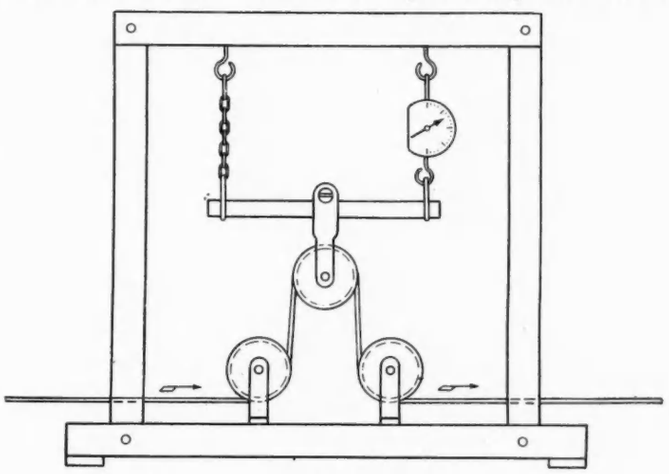

FIG. 10.

cables of various sizes at different speeds in different styles of conduit. The pull was measured by passing the pulling line over pulleys on the scale beams of a dynamometer. (See Fig. 10.) The experiment with which the writer was principally concerned involved the placing of a 300-pair, No. 19 gauge lead and paper cable, weighing seven pounds and seven ounces to the foot, and having an outside diameter of 2⅝ inches in a section of multiple duct tile 682 feet in length. This cable was first installed from the reel by pulling with a capstan turned by a horse. The strain in the

rope varied from zero at the start up to 3,200 pounds at the finish. There was a maximum of 3,500 pounds about fifty feet before the finish was reached, due to stoppage and starting up again. The cable was allowed to lay in the duct for about fifteen minutes while the capstan was secured more firmly to another anchorage, the first one having given way. When started after this rest the strain went up to 3,500 pounds. The speed at which this cable was installed was about twenty-five feet per minute.

Preparations were then made to pull this cable at a higher rate of speed into the adjacent section, there being of course no difficulty encountered in feeding it from a reel, as it was to simply slide from one conduit section into another. The power used was that which could be obtained from ten horses on a direct pull. It was found to be impossible to get these horses started. By fastening a snatch-block to the

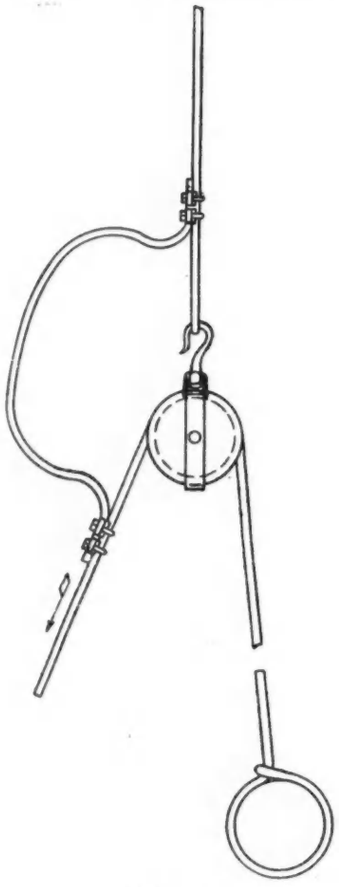

FIG. 11.

end of the pulling line and taking another pulling line from a telephone pole about 300 feet down the street and around through the snatch-block (Fig. 11), it was possible to make a start on a lower speed; but when the slack was taken up and the horses were pulling directly on the cable, they had to stop. A five-ton electric automobile was then called into service. By placing a 2,000-pound reel of cable at the rear end of this truck over the traction wheels the pull was handled with no trouble whatever. The cable was pulled into this section at a speed of about 120 feet per minute with an average strain on the pulling line of about 2,800 pounds. This merely bears out the well-known physical law that the co-efficient of friction between certain kinds of unlubricated surfaces decreases as the speed increases.

The next test was made of drawing the cable back into the section from which it had just been pulled, using powdered soapstone as a lubricant. This costs in quantities about three cents per pound, and was selected as less objectionable than either soap or axle grease. We placed about one gallon of soapstone in the duct in advance of the hitch, which pushed and distributed it along the path of the cable. We found that with a drawing speed of 120 feet per minute (using the automobile) that the cable started with a drag of 3,100 pounds. This drag decreased gradually, as more cable was pulled out of the unlubricated section and into the soapstoned section, until just before the cable was entirely in the latter and we stopped pulling, the drag was 1,200 pounds. The table below shows the result of this roughly:

Weight of Cable.	Length of Section.	Speed per Minute.	Lubricant.	Strain.
5060	682	25′	None	3200
5060	679	120′	None	2800
5060	682	120′	Soapstone	1200

After this cable was installed all of the wires were tested to see if any of them had been broken under the strain, and they were found to be intact.

When pulling in this cable without lubrication it was noticed that the cable in this long length would stretch about nine inches. If the strain was taken off the cable would relax to its original condition. It would seem that our old idea of drawing cables slowly and with extreme care to prevent injury was wrong; that the cable rather should be pulled rapidly. I think that when the problem of feeding cable from a reel at a speed twice that of present practice has been solved, it will be a measure of safety to increase drawing speed.

(To be continued.)

WILL MAKE BIG EXTENSIONS.

During the coming season the United States Telephone Company will spend $225,000 in extension of its lines into new territory. Several new wires will be strung out of Columbus, through Circleville and Chillicothe, to Portsmouth, thence to Catlettsburg and Huntington, West Virginia. At Huntington connection will be made with lines passing through southern West Virginia and all the mining region in that section of the state. A heavy wire is now being put up between Cleveland and Erie, Pa., which will give connections to Albany, New York. A line will be built direct from Cleveland to Toledo. In the past connections have been made by way of Kent, but the business has grown too heavy for this. The Kent line will be extended to Youngstown, where it will make connection with the Pittsburg line. The business from Albany and Buffalo will be handled over the new Cleveland-Toledo line. Nothing will be done toward getting into Cincinnati, it is said, until the local companies arrange for a plant there.

CUYAHOGA TELEPHONE PROGRESS.

The total number of Cuyahoga telephones now installed and in use is over 16,000 and will undoubtedly be considerably over 17,000 by July 1, so it is stated. President Dickson is confident that the showing of the Cuyahoga Telephone Company for 1905 will be phenomenal and that at least 20,000 telephones will be installed by January 1, 1906. The company is largely increasing its revenue in many cases without the installation of new wires or cables by changing from full metallic service to four or two-party lines. For instance, the former business rate of a single circuit was $48. It has now been raised to $72. In many cases the party does not desire to pay the increased rate and takes a two-party line for $54. Another party is put on the line and the two pairs of lines which were formerly bringing $48 now bring $108. This has been done in a great many instances. The Cuyahoga was never in better shape.

Decisions Affecting Telephony

G. W. HAND

EMINENT DOMAIN IN CALIFORNIA—VALUE OF FEE AND EASEMENT.

IN a railroad case in the above state a question arose as to what the damages should be in certain condemnatory proceedings where there was a controversy as to whether the railroad company was in reality obtaining rights for which it should pay the full value of the land taken, or was merely obtaining an easement therein for which it should pay an amount which would compensate the owner for whatever rights he was deprived of by the occupation by the railroad company. The Supreme court of the state said:

Where there is a substantial difference between the value of the fee and the value of the easement to be taken by condemnation proceedings, the value of the fee may be proven and assessed as damages; but where it can be shown as a fact that the fee, burdened with the easement, is of some substantial value to the owner, as where the underlying estate is valuable for the minerals it contains, this value is reserved to the owner, and must be taken into consideration in determining the damages to be awarded for the imposition of the easement upon the land.

Southern Pacific Railroad Company v. San Francisco Company et al., 79 P. 961.

LINEMAN THROWN FROM POLE BY BICYCLIST BECOMING ENTANGLED IN DROOPING WIRE.

The following facts led up to a personal injury suit which was recently tried in the South Carolina courts: Philip H. Hyland, a lineman in the employ of the Southern Bell Telephone & Telegraph Company, was engaged in re-connecting private telephone wires, which had been cut in placing in position some of the other wires of the company, and in ascending the pole to connect the wires had fastened about himself the coil of wire. The wire which he was carrying up the pole was thus loose and came near to the ground. A passerby on a bicycle ran into the wire, and as a result the lineman was pulled from the pole and fell to the ground, sustaining severe injuries. Suit was brought on the claim that it was the duty of the company, which it had established by its own custom, to place guards on the street to protect the linemen while ascending poles under such circumstances. Hyland further alleged that it was the duty of the company to furnish suitable tools and appliances to enable linemen to carry wires up poles without being compelled to fasten them to their persons. Hyland alleged that the company was negligent in both these regards. A verdict was secured against the company at the trial.

The above claims involve two very important grounds of liability to which telephone companies are constantly subjected, and the decision of the Supreme court of the state which passed upon them is therefore important. The contract of employment with Hyland contained the provision that he should furnish himself with all necessary tools and apparatus. The custom of the defendant that it have men to guard linemen while ascending wires under the circumstances of this case was a sufficient ground in the opinion of the court for the ruling that in failing to follow this custom there was actionable negligence for which the company was liable. The court said on this question that while the proof was that the company had contracted with Hyland that the latter should furnish his own "tools and appliances," yet it could not relieve itself from liability for injuries sustained as a result of failure to follow the custom of placing guards near a pole on which a lineman was ascending with a loose wire fastened to his person. The court also indirectly said that the contract with Hyland that he should furnish his own tools was not binding upon him and that the liability for damages from injuries arising from improper tools still existed in the lineman's favor.

Hyland v. Southern Bell Telephone & Telegraph Company, 49 S. E. 879.

CONTRACT FOR THREE YEARS NOT SIGNED BY BOTH SUBSCRIBER AND COMPANY IS VOID—ENFORCEMENT OF CONTRACT FOR SERVICE CONTAINING AGREEMENT TO BUY STOCK IN COMPANY.

The suit of the Co-Operative Telephone Company of Detroit against Peter Katus, which will be found reported in the April, 1904, TELEPHONY, wherein the above company sought to collect certain stock subscriptions from subscribers who agreed to take stock at the time of their agreement to install the company's service, has been reversed by the Michigan Supreme court and a judgment entered in favor of the defendant. When the company commenced business it presented its proposed subscribers with contracts reading as follows:

I do hereby subscribe for one fifty dollar share of the capital stock of the Co-Operative Telephone Company to be paid for in monthly installments of ten dollars each, as called in by the board of directors of said company; with the understanding that I am to be paid interest .... until its telephone exchange shall be actually opened for business.

This agreement is subject to the provisions of Sections II and III of Article I of the by-laws of said company. . . .

And I do further agree that I will rent one residence telephone of said company for the period of three years, from the time when the said exchange shall be opened for business, at the rate of twenty-four dollars per year, payable quarterly.

Section II, above referred to, was a provision that each contract for stock should also contain an agreement for the rental of a telephone for three years. The above conditions are the material parts of the contract which Mr. Katus signed. Telephone service was not installed in accordance with the provisions of the contract, and Mr. Katus having refused to pay for the stock, suit was brought to collect for same. His two defenses were that he could not be compelled to pay for the stock until all the conditions relating to the furnishing of service had been complied with, and that the contract could not be enforced for the further reason that plaintiff not having signed the contract it could not be enforced against either party. The Supreme court said in disposing of the case:

These contracts are not signed by the plaintiff. By the requirement of the plaintiff this agreement is made an essential part of the subscription for stock, and the evidence in the case shows without dispute that defendant made this contract for the purpose of securing a telephone and that no contract for subscription of stock would have been accepted without it. It is clear that the agreement to rent a telephone for the term of three years at the stipulated rental is within the statute of frauds and cannot be enforced for want of mutuality, for the reason that it is not signed by the plaintiff, and could not be enforced against it. (58 M. 574.)

The clause in the contract which contains the subscription of defendant for one share of stock cannot be said to be a separate and independent agreement upon which defendant may be held liable notwithstanding the clear invalidity of the contract already pointed out. This contract must be considered in its entirety. It is in terms and drawn as required by the plaintiff. Its invalidity goes to the whole contract, and neither party could enforce it or any part of it against the other.

Co-Operative Telephone Company v. Katus, Supreme Court of Michigan, 12 Detroit Legal News 187.

DISCRIMINATION—REMOVAL OF TELEPHONE.

The Iola Telephone Company has a franchise to furnish telephone service in the town of Iola, Kansas, and has about 500 subscribers, some twenty-five of whom are outside the limits of the town, the majority of the latter being manufactories. The company had consented to furnish service to some few residents on condition that they install the poles and wires at their own expense. Frank V. Crouch was one of these and although living within a few feet of the corporate limits of Iola, was a half mile from the nearest manufacturing business. The pole from which wires were attached to bring the service into Mr. Crouch's residence was within the corporate limits of the town. He had not paid for the connections as had other residences. A dispute over charges arose between him and the company and his telephone was removed. This statement of facts will make clear the following discussion of the law involving the alleged liability of the telephone company on a charge of discrimination and removal of a telephone contrary to the rule that companies must furnish equal facilities to all:

We also agree with counsel that such companies cannot lawfully discriminate between the subscribers of the same class, and that a telephone company or partnership doing a general telephone business in a city must treat impartially all persons whom they undertake to serve. Also, when doing a general business outside a city, all patrons in the vicinity must be dealt with impartially. The question of fact tried and considered by the court below was whether the telephone company was doing a general business outside of Iola and in the vicinity thereof. The general finding of the trial court determined the question in the negative; further that the limits of the company's general business outside the city did not embrace relator's residence. While the company was serving several manufactories beyond the city limits they were not in the class with relator. And the owners of residences outside the city who had telephones were supplied at their own expense or paid for the poles and wires used to connect them with exchanges. If Mr. Crouch had resided in the city, his rights would have been clear. Being outside, a question of fact was presented whether in removing his instrument a discrimination was practiced on him —a right infringed which he enjoyed in common with others situated smilarly. A telephone company operating wholly within the corporate limits of a city could not be compelled to supply instruments to residences beyond the boundaries of the town, and make connections therewith. In this instance it did serve patrons outside of Iola, but the disputed question was whether Mr. Crouch, by reason of proximity and other conditions, was entitled to equal rights with them.

The Supreme court, following this reasoning, held that there was no discrimination against Mr. Crouch for which he could legally complain.

Crouch v. Arnett et al., Supreme Court of Kansas, 79 P. 1086.

DEGREE OF CARE THAT MUST BE EXERCISED IN GUARDING AGAINST DEFECTIVE INSULATION.

A Missouri case involving a claim for damages by one who had received injuries through alleged defective insulation of electric wires was recently decided wherein the law on the above question was discussed. The facts are unimportant and the following quotation from the Kansas City Court of Appeals is so clear as to need no comment:

In some courts it is held, even as to such exceedingly dangerous appliances as electricity, that "ordinary care" or "reasonable care" is what is required, while in others an extraordinary degree of care is required—that is to say, something more than mere reasonable care. The case of Guisemann v. Missouri Electric Company, 173 Mo. 654, 678, 73 S. W. 654, undoubtedly puts this state (Missouri) with the latter class, for it is there expressly said that the law requires more than keeping the wires reasonably safe. But in consideration of the extended discussion of the Guisemann case, we will state our understanding of the rule there laid down. The particular part of the opinion discussed is the following paragraph:

"It follows from these authorities (which the court there reviewed) that it was defandant's duty, in the first place, to use every protection which was reasonably accessible to insulate its wires at the point of contact of injury in this case, and to use the utmost care to keep them so, and the fact of the death of Guisemann was conclusive proof of the defect of the insulation and negligence of the defendant, and as to whether he was guilty of contributory negligence or not was a question for the jury."

In our opinion the rule established by that decision is that the utmost degree of care (more than ordinary care) should be used in both insulating the wires and in keeping them insulated. In dealing with some ordinary appliance, only ordinarily dangerous, much less effort would be considered a reasonable effort than if the appliance was one of the most dangerous, deceptive and destructive known. So when the court said that every protection "reasonably accessible" must be used in the first place in protecting the wires and the "utmost care should be used to keep them so" the two expressions should be taken to mean the same thing—a statement of the same matter in different words. For, considering the noiseless, hidden, and destructive power of electricity, a reasonable effort to control it is nothing short of the utmost effort—nothing less than the utmost would be a reasonable effort. . . . . We therefore hold it to be the duty of those who maintain such appliances to use the utmost care to thoroughly insulate the wires and to keep them so insulated.

The court said in discussing the question of the negligence of an electric company where an accident had been the result of sudden breaking of insulation, as for example by the falling of some heavy weight upon an electric wire, that in such case the company would not be liable. It was also said that the rule of contributory negligence applies in these cases as well as in other personal injury claims.

Winkleman v. Kansas City Electric Light Company, 85 S. W. 99.

LICENSE TAX ON POLES IN PENNSYLVANIA.

The Superior Court of Pennsylvania has said that under the act of April 28, 1899 (P. L. 104), classifying townships, commissioners of townships of the first class have the power to impose by ordinance a reasonable license tax on telegraph and telephone companies for each pole in the township. The act conferring authority on these bodies expressly gives authority in the opinion of the court to impose license taxes of the above character, providing the object is to carry on the township affairs in a better way and to aid in the accomplishment of the objects for which the township corporation was created.

Lower Merion Tp. v. Postal Telegraph Cable Company, 25 Pa. Super. Ct. 306.

NOTICE TO AGENT IS NOTICE TO CORPORATION.

In a recent case against an electric company, in which a house painter received injuries by a current of electricity, the plaintiff introduced evidence to show that an employe of the electric company had the duty of turning off electric currents from houses on which painting was to be done and that the employe knew that the particular house was being painted, but failed to communicate the knowledge to the office, it was held that this knowledge of the agent was knowledge to the company and that for any liability direct knowledge would have placed the company under, the indirect knowledge which it was charged with by the notice to the agent created an equal liability.

Baries v. Louisville Electric Light Company, Court of Appeals of Kentucky, 85 S. E. 1186.

ATTACHING WIRES TO ROOF OF BUILDING WITHOUT PERMISSION—DAMAGES FOR THE TRESPASS.

One Bunke was the owner of a house, on the roof of which the New York Telephone Company had attached its wires without Bunke's consent. Suit was brought against the company for trespass and damages were asked for the rental of the roof for the purpose above indicated. The New York courts have held that a right of action for trespass existed for which the telephone company was liable and that a reasonable rental value for the roof for the purpose to which the company put it could be collected.

Bunke v. New York Telephone Co., 91 N. Y. Supp. 390.

Standard Toll Signs

W. F. LAUBACH

THERE is perhaps no department of the Independent telephone business so generally neglected as that of advertising; it is perhaps also true that it is the only feature which may to a certain extent be ignored, without as disastrous results as the neglect of any detail in connection with the operation proper. Every enterprising, progressive, and shall I say, successful business man of the present day, knows he must exploit his wares if he expects to sell. Advertising has become a distinctive business, and so varied are the ways and means employed that it has become one of the important departments of every well-appointed business establishment.

Millions of dollars are wasted annually upon injudicious advertising. Many more millions also are judiciously expended or invested, not for merchandise direct, but for purposes of informing the prospective purchaser where he may find the article he is in search of—evermore—an attractive and well-worded "ad" will positively create a demand on the part of the public, who, without knowing it, are silently "led to the slaughter." The "ad" has done its work, and has done it well. This fact, no doubt, explains how many a man is enticed into a personal interview with "what made Milwaukee famous." The "ad" often seen has finally aroused a desire for closer communion.

It is not idle assumption, that advertising is one of the fundamentals of success in these days of hustle and fierce competition. The vital question is, How shall advertising be done? Some in defining what is meant by General Publicity says it is keeping the *name* constantly before the *people*. Now that is exactly what we Independent telephone operators must aim to do. The *name* which we want to keep before the *people* already has been decided upon and accepted by us. The *name* is Independent; this name can be silently and forcibly expressed by some design, so that not only the term Independent, but for us its complement also the word "Telephone," will be associated therewith instinctively when a certain design is flashed upon the vision. "Independent telephones" is what we want to get before the people, and keep before them.

To illustrate my meaning, who does not instinctively think of a breakfast food known as "Quaker Oats," when his eyes behold the rather quaintly but characteristically dressed figure representing the Quaker, who, it is said, originally was the principal inhabitant of that eastern city in which the Keystone Telephone Company and Mayor Weaver are now doing business. Or who thinks of ice water when seeing the monogram "A. B." entwined about an eagle? Or the mere word "Schlitz," especially when decorating one of those curved metal or glass ear-marks never found on church or Y. M. C. A. edifices. Who does not instinctively associate with a picture of that huge mass, the rock of Gibraltar, this familiar sentence, "The Prudential has the strength of Gibraltar?" So impressive is this unique trademark that one would almost feel inclined to look for the very letters, somewhere back of the fortifications, while gazing upon the actual and natural scenery itself. What woman does not instinctively think of Mennen's talcum powder when she sees a certain visage depicted in printer's ink? While the term has been very extensively appropriated by others (and frequently a very bad taste) nevertheless every one irresistibly associates a certain product of the National Biscuit Company with the rather odd but striking word "Uneeda." Thus also the word "Libby's" at once is eloquent in recommendation of palatable ingredients for at least the soup course of an average American dinner. When we observe the number "57," especially when associated with its logical companion-piece, "Heinz," we think of nothing else than pickles—surely not strawberries or ice cream.

These are instances of trademarks or successful advertisements which are before the people as irrepressibly as the very earth upon which they tread. Here, then is the principle by which we should be actuated in the selection of a universal trademark for all Independent telephone companies, no matter where located, or under what corporate name. Such a trademark will also be to a very large extent an educator; for we still have before us the problem of impressing upon the public mind the fact that the Keystone Telephone Company of Philadelphia; the P. & A. Telephone Company of Pittsburg; the Cuyahoga Telephone Company of Cleveland; the Citizens' Telephone Company of Columbus; the Home Telephone Companies of Toledo, Indianapolis and Louisville; the Kinloch Telephone Company of St. Louis; the Mutual Telephone Company of Des Moines; the Home Telephone Companies of Kansas City, Denver, Salt Lake City and Los Angeles, and the Automatic Telephone Company of Chicago, as well as the Farmers' Mutual Telephone Company of Smith's Corners, operating but eleven telephones, though as legitimately an Independent property as any of its larger contemporaries. These are all part of a great system stretching from ocean to ocean, from the Gulf to the Lakes and even into Canada.

Until we have impressed this fact indelibly upon the public mind, we shall not have accomplished what is necessary to our greatest achievement; nor will any individual company possess the prestige it will otherwise command. How shall this education be best conducted? The answer seems simple enough—*advertise*. The question then arises, What is the most impressive mode of advertising? It is generally conceded that that which appeals strongest to the sense of sight, by which an impression is conveyed to the storehouse of the mind, leaves the most abiding impress. If this is true, and experience teaches it to be so, we cannot go wrong by adopting some simple and dignified emblem that will at once appeal to the eye. Among this class of emblems there is none more pleasing, impressive, comprehensible and effective than the shield; peculiarly so, when emblazoned with the tri-colors of our National design. The particular trademark or standard sign which I trust this convention may see fit to adopt by a unanimous resolution, is the one with the shield in the National colors, red, white and blue, within a white circle surrounded by a solid blue field. This will not only make a graceful, artistic and impressive sign, but at the same time a fitting emblem for Independent telephony, in its role of defender of the public against the extortions of monopoly. If this convention should see fit to recommend the universal adoption and generous display by each Independent operating company throughout the United States of a uniform trademark such as this sign would be, it will have accomplished a vast work, and one which will, if put into general practice, do more to eliminate that certain ignorance on the part of the public, which now exists and works against our interests. I refer to that ignorance or belief on the part of the

Paper read at the National-Interstate Independent Telephone Association convention, at Chicago.

general public that the average local company is merely local, and for that reason cannot furnish so-called long-distance service.

Do I hear some interested investor or manager say, "We are jealous of our individuality, and do not care to adopt measures which may jeopardize our local standing." To such let me recall the ancient motto, "United we stand, divided we fall." The more the spirit of unity is cultivated and carried into execution, the more we shall all reap the fruits of gigantic enterprises. It has been demonstrated times without number that had it not been for the larger "Independent" companies, acting as a strong arm about the smaller and weaker ones, they would have been frightened into selling out at great loss, or have become sublicensees of the Bell bugaboo.

We have heard and are hearing much about standardization of equipment and modes of keeping records and books. There is, however, no one thing pertaining to the business that will bring Independent telephony upon a higher plane in all its branches, including its finances, than the adoption of a standard, uniform sign, that shall indicate to Mr. Brown of Philadelphia, as he travels westward, where Independent service may be found; whether in Pittsburg, Cleveland, Indianapolis, St. Louis, Kansas City, Denver, Salt Lake City, Los Angeles or Chicago—a universally recognized mark, pointing out the genuine in contrast with the spurious.

THE "HELLO GIRL" AND HER LABORS.

Aided by her vivid imagination and a none too complete knowledge of the work, nearly every school girl has at one period of her life felt a strong desire to become a "hello girl." Some few succeed and usually modify their opinion of the pleasurable part of the position. The majority put in applications which are never heard from, become clerks or stenographers with all the prosaic humdrum that such work carries with it, and for the rest of their natural days consider that they have missed their chosen calling.

Just how true this is is shown by the number of applications made for positions by girls to city exchanges. Often these are as high as 200 to 300 names on the waiting list with an average change every three months. Contrary to the general opinion, a telephone girl does not hold a perpetual job, even though she be perfectly satisfactory to the company. Cupid and nervous breakdowns play an important part in the changing of telephone operators.

To the average man, be he merchant or clerk, "central" is but a plaything to relieve the monotony when time drags heavily on his hands. The charm of conversation with an unknown and invisible feminine proves a temptation more than most men can stand, hence the so-called telephone flirtation, for what girl is not susceptible to the flattery that slips easily off the smooth tongue of man, and what more favorable opportunity for the sterner sex to indulge in "jollying?"

This is, in fact, the bane of every "hello girl's" life. She has her regular patrons of the telephone whom she does not like to offend. The company's rules are strict regarding conversation, but a little pleasantry, she argues, can do no harm. The trouble lies in drawing the distinction. Some men forget themselves over the wire "because it's only central." Her duty is to cut them off or report them; but this she dislikes to do, and the man emboldened by the fact that the girl did not actually "call him down," repeats the offense, and the girl is in an embarrassing situation. It is all very well to "call a man down" if you do not have to talk with him every day.

One of the greatest charms that appeals to the uninitiated in the life of the telephone girls is the secret pleasure they are thought to enjoy in the "listening in" process. Then they are believed to sit in with rapt attention and ear glued to the receiver, to catch every morsel of scandal that goes over the wires. They are the silent witnesses to the inside of important transactions, political moves, sensations that would startle the whole town; facts that would break up many a home, and in short, nearly everything that is going on around them. It is this that thrills the clerk each day as she trudges to her dull routine labors, and instills in her an envy of what she believes to be her more fortunate sister.

Yet the life of the "hello" operator is not by any means a bed of roses. Her hours are usually long, her pay small and her duties nerve-destroying. Few girls in the large cities last many years at the work, and it is no uncommon thing for a new girl to faint at work. Where the work is swift the disposition is soon spoiled and the sunny girl becomes not infrequently a cross, ill-natured woman. It takes an immense amount of courage for a girl to always give the silvery-tongued response that is expected of her over the telephone.

FOREIGN TELEPHONE NOTES.

The telephone "hello!" in Japanese is "moshi, moshi!" The busy signal must be something jarring.

The French under secretary of state for posts and telegraphs has at last satisfied public opinion by appointing a committee to investigate telephone grievances in Paris, and also by his propositions for a complete transformation of the present system. Since Vienna has successfully tried the automatic call system he proposes to try the same in Paris if the state will furnish the means.

The annual meeting of the Association of Telephone Subscribers of Paris was held recently under the presidency of Marquis de Montebello, the founder and president of the association. It was announced that the number of members had increased during the year from 1,500 to 6,503, out of a total of 40,000 telephone subscribers. Mr. Montebello urged that the administration must be forced to adopt modern systems and regulations which have worked well in other countries.

It is stated in the Sydney (Australia) Daily Telegraph that telephonic communication has been established experimentally between Sydney and Melbourne. In February the first connections were made, covering an entire distance of 576 miles, and the postmaster general had a conversation from Sydney with Mr. Jenvey, the Melbourne chief electrician. When the experimental work has been thoroughly tested, communication will be made available to the public.

It is stated that the telephone exchange which is to be opened at Hamburg in the course of the present year will be the largest in Germany. The exchange will be able to deal with 50,000 subscribers on the all-metallic system, although the existing connections only number 21,000. The telephone cables have all been laid underground, and on the starting of the exchange the present overhead wires connected with the old exchanges will be entirely removed from the roofs of the buildings throughout the city.

Sir Thomas Dewar, a prominent Briton, recently visited the United States. He was much impressed with the progress of telephony in this country, and London Opinion quotes him as saying: "The telephone in the United States is perfect and assists the rapid promotion of business more than anything else I saw during my visit. It is regarded as an absolute necessity in America and one cannot help being continually reminded of its existence, for in large centers an instrument is to be found in every office, shop, house and almost in every bedroom. One minute is the time in which to get connection by telephone, and from my own experience I know this is not the case in London."

Concerning Telephone Traffic

SAMUEL G. McMEEN

THE term "traffic" has long been agreed to mean an exchange of goods, wares or merchandise; and in that sense of the transfer of a physical something the word may cover a wise variety of commercial transactions, but not the real business of furnishing telephone service.

A later meaning, agreed upon by those accustomed to give thought to the uses of words, makes the term "traffic" equivalent to the business of transportation. In this sense, railroad traffic is properly named. A second meaning, and one which seems wholly to be warranted by good usage, is that traffic means a business procedure or a business transaction. These things are sufficiently inclusive to define the operations of giving telephone service.

Thomas D. Lockwood, master of telephone terminology, has been known to object to the term "traffic" as not having a standing entitling it to describe, in the aggregate, communication by telephone. Like many another term in the telephonic art, however, this one seems to have taken the bit in its teeth, and we may as well try to control it, hereafter, without attempting to drive it back over the road.

In a telephonic sense, traffic may be said to be the gross transaction made up of the individual transactions of communication between telephone users. This traffic may be expressed in whatever terms are found convenient for the particular phase considered.

With reference to local service, in which the individual transactions are conversations between the users in a single community, the conversation is the unit. For the reason that all calls from subscribers do not result in connections, and all connections in turn do not result in conversations, there will be more calls than connections, and more connections than conversations.

For these reasons in traffic inquiries which have to do with the amount of business which the subscribers attempt to transact, the total quantity in a given time is usually considered as of so many calls originated by the subscribers in the community. It is from this that the term "originating calls" has arisen.

For the reason that the purpose of the switching equipment in a central office is to make connections, the abilities of operators and of equipments are frequently measured is terms of connections per unit of time.

For the reason that in charging for service, all calls which do not result in connections, and all connections which do not result in conversations, must be deducted, the conversation is the unit of traffic when charges are to be considered.

Further in the line of definition, an originating call which may not be made into a connection because the called line is engaged, is termed a "busy call."

It is important in all sizes of offices to determine from time to time, or to determine continually, the amount of the traffic which is being satisfied by the lines and equipment. Such a determination needs to be made in advance of any important change in the original plan, and in the case of building a new system, some such determination always is made, whether well or poorly. After the beginning of operations, there is much value in knowing the amount and rate of the traffic of the exchange; per office in the exchange, if there is more than one office; per position in an office; per line, and per subscriber. Perhaps this seems like an excessive refinement, and an amount of unnecessary labor, when the traffic would go on of its own accord and the gross earnings probably be about the same otherwise. A little thought may convince one to the contrary.

No central office equipment can be intelligently installed without a determination, in advance, of the number of positions required properly to handle the traffic from the known number of lines. Neither can the power plant be provided of a size great enough to carry the traffic and small enough to insure economy unless some estimates be made in advance.

Let us assume an exchange which is to handle 5,000 individual lines. It is to be equipped with a multiple manual board of the common battery type. In former times it was customary to decide arbitrarily how many lines to give each operator, and in case 125 was the selected number, the number of positions would be forty.

More thorough methods, however, include a study of the traffic in towns of similar character and development. Assuming that it is determined that twelve calls per line per day will represent the probable maximum rate of calling, a total of sixty thousand calls must be cared for. With the type of board decided upon, operators of average ability are able to complete all the necessary work for 220 originating calls in the busiest hour of the day.

In this busiest hour of the day, a very constant large part of the calls of the total day will be originated; and in a given town, the ratio of these calls in the busy hour to the calls in the total day will remain very constant. In a large busy city, perhaps one-eighth of the total calls will be in an hour, while in a smaller, less active city, perhaps one-tenth will be so congested. This is reasonable when one remembers that in the largest city the active business of the day begins later and ends earlier. Colloquially, therefore, in traffic conversations ,the towns having the larger population are known as having an "eight-hour day," and in the smaller as having a "ten-hour day."

Assuming the town we are considering to have an eight-hour day, each position will have a daily ability of only 1,760 calls, as the ability of the position is limited by the amount of work which can successfully be performed in the shorter period.

If, therefore, there are 60,000 originating calls to be handled in a day, and each position can handle 1,760 of them, thirty-five positions must be provided, as that is the next whole number above the quotient.

If thirty-five positions are to be used to switch the calls of 5,000 lines, an average of about 143 lines per position will be required, and for a reasonably small cost for moving lines about, 150 answering jacks and lamps per position may be used with economy. This in outline and without slavish exactness is the general procedure to determine in advance what the equipment of a central office shall be.

Similarly, from the records of traffic, in similar cities, one may determine the probable average length of conversation, and from this determine immediately the power plant which would be required for the office under design.

In all exchanges which have a plurality of offices within them, the continued growth of the community will require the opening of new offices from time to time. If the traffic is continuously observed, its records will enable the equipment and organization of each new office to be determined in advance with great accuracy. Indeed, it is probable that in a city of such size as to have settled into a reasonably steady growth, the details of a future office may be laid out with safety several years in advance of its being needed, and

with a percentage of accuracy distinctly greater than that which is possible in many of the more settled forms of barter and of trade.

Apart from the value of traffic observations and traffic records required for the laying out of new offices in developed and undeveloped cities, it is of importance to know the traffic per line and per subscriber for reasons quite apart from those of central office equipment. Close observations upon the traffic of busy lines will often show that they are attempting to carry, per line, both in incoming and outgoing calls, many more conversations than it is possible to place upon a single circuit. Unless the subscriber's equipment is under the immediate observation of the person who pays the bill for the service, it is almost always true that he knows less about what he is getting for his money than does the operator who answers his calls. The harm which is inflicted upon the system in general by the called line being found frequently busy is out of proportion to the labor required to determine the exact facts and carry them to the subscriber.

The practice in New York city is of much interest in this connection. In the entire system in Manhattan, service is sold on the message rate plan. A meter connected with the subscriber's line records in plain figures one unit for each successful conversation. As the revenue of the telephone company depends upon the completion of successful conversations, it is the practice to make a record of all busy calls, and to complete them when the called line is free.

To accomplish this purpose it is necessary for the operator to make a ticket, on calls so failing, of the numbers of the calling and called lines in order that she may carry out the process and get the conversation charged. When this has been done, the ticket is of no further use as a memorandum of the transaction, for the call is counted on the meter of the calling line.

For quite another purpose, however, all of these tickets in each office are sorted with reference to the identity of the called offices only. All Thirty-eighth street office tickets are sent to Thirty-eighth street, all Morningside tickets to Morningside, etc. In Morningside, for example, these tickets of the day before are sorted over, and those for subscribers having the most busies in a given period are made the basis of a personal visit upon that subscriber, in which it is pointed out to him that on certain days he lost so many calls because of his line being busy. This information is often news to him, could come to him through no other source, and ordinarily results in mutually satisfactory arrangements being made by which he secures a better service, calling subscribers are less annoyed, and the general revenue of the telephone company increased because of its successful performance of more service. It is to be noted that the increased revenue is due to the fact that a greater and more satisfactory service is rendered, and not in the fact that an additional line contract is secured.

It is not widely appreciated that the number of calls which can be successfully handled in a day over one line to a subscriber is much less than half of the number which can be handled over two lines to the same subscriber, and still less than one-third of what can be handled over three lines to the same subscriber. In other words, a subscriber having several lines bearing the same number in the directory gets greater and greater use of each as he requires more of them, as this efficiency of individuals increases with an increase in size of the group containing the individuals. It is still more marked in the case of trunk lines between central offices.

Similarly, while one type of equipment and one method of procedure may be the best for handling trunk lines, or other allied performance, only a careful study of the characteristics of traffic will enable the right changes to be made at the right times.

Careful counting and recording of the number of originating calls and completed connections per operator per hour, and per other smaller units of time, have enabled students to determine at just what rate different kinds of switching can be carried on. The abilities of operators not only vary among individuals, but it requires a different amount of labor per call to switch flat rate calls and single number, two number, prepayment, request and meter message-rate calls. As an instance of what may result from such a study, the following interesting condition may be outlined:

Two neighboring cities developed a large traffic for each other, their borders joining and their interests being largely common. Conditions of geography and of common organization made it wise to maintain a toll charge for such calls, and for years they were switched through toll boards quite as if the towns had been miles apart instead of in contact. It was suggested that as these calls were increasing in number, and as they were different from calls trunked between two offices in the same city only in that a ticket required to be made, that they be switched directly between subscribers' operators in the calling town and trunk operators in the called. Arguing from the known premises that to give A or B operators ticket writing must slow up the service, and all the more so when the tickets require to be in some detail, it might have been decided in advance that toll board work must not be placed upon local operators under any circumstances. Instead of doing this, a careful study of the costs was made, with the result that all A operators were equipped for writing these toll tickets, and all business thereafter handled exactly like trunk business. To insure, however, that a ticket always will be written on the making of such a trunked toll call, it was arranged that on going in on a call circuit leading to the toll board, a special warning signal lamp would be displayed. The meaning of this signal is merely that a ticket shall be written.

The present general standard type of common battery multiple board is one adapted to do the switching for substations which have no local batteries, and in which all signals are set by means of the same current which supplies the energy for speech transmission.

Such a central office equipment is sometimes thought of as being principally useful because of the saving due to eliminating substation local batteries. This is not really the greatest advantage of the type, for, after all, it is a traffic problem which has been solved, and not principally one of economy of material. The reason for a considerable saving due to traffic economy is that the operations to be performed by central office labor are made fewer in number, and simpler in character, so that more of them may be done with accuracy in a given time. As the quality of the service rendered may be improved in accuracy, for that reason, if there were no other, the total switches in a given time may be increased. The thought here is that the thing which finally limits increase in operator's work, is the beginning of a showing of loss in the quality of service.

The intermediate distributing board itself is distinctly a traffic device, and would never have been invented except for the appearance of a need which before had not been accomplished in manual practice in any other way. The need in question will readily appear if one will consider the beginning and growth of a magneto exchange in a small town.

Assume that there are in the beginning 100 lines, and that these are cared for by one operator. As the system grows, the prominent and prosperous business houses having the larger traffic, will retain service, while the more transitory interests will drop out. The places of the lost subscribers will be taken by others, and as the growth continues more and more people of small means and limited business and social activity will be added.

As in a simple board of the magneto type, there is one jack and one drop only for each line, each subscriber's

number, which he considers his property and may advertise, is ina large sense a fixed thing. So that when it is found, as it will be found, that the first section of the board is very much busier than the others, there is no way of relieving the first operator and loading up the others, except to move lines from her position, which entails changes of the numbers of important and long-established subscribers. Dissatisfaction always results from changes of number, and this is more marked in smaller communities.

It was such a reason as this which caused the invention of the intermediate distributing board. It is only applicable to multiple boards which have answering jacks separate from the multiple. Its purpose is to enable lines to retain their identity in the multiple—in which all outgoing calls from the central office are made—and to enable the answering jack and signal on which all incoming calls to the central office are received, to be moved about at will. By this process the call-originating part of the system becomes plastic, and can be spread about over the call-handling part of the system with reasonable convenience.

Still a further development of traffic handling mechanism has been proposed to accomplish from moment to moment what the intermediate frame can accomplish from day to day. To enable the latter to fulfill its usefulness, counts of originating calls must be made with frequency enough to enable a study of them to determine what positions require relief, what positions can stand more lines, and how many should be removed to even things up. The accomplishment of the further refinement of distribution is proposed by mechanism enabling special operators to switch all lines which are calling to regular A operators before the multiple. In one such system, designed ten years ago, a group of special operators having before them great banks of lamps and answering jacks had for their duty the placing of trunk plugs in jacks to extinguish calling lamps, and to remove them from jacks to extinguish relighted lamps, then acting as disconnect signals. It was believed, and is doubtless true, that such operators, wearing no telephones and concentrating their attention on the simple duty of keeping lamps put out, could do these things at such a rate as to make that cost per switch very small.

The A operators before the multiple were to be equipped with cord circuits of a single cord and plug each, these being the terminals of trunks from the answering jack board. Calls placed by the special operators would be immediately answered without special motions on the part of the A operators, and the single plugs placed in the multiple after testing. Automatic ringing, automatic supervisory signals, and disconnect signals to the special or "Y" operator's board were features of the plan as developed, and but for reasons of corporation politics, the installation, which was begun, would have been completed.

These seems to be little doubt that the time is near at hand when such a further refinement of switching will permit the installation of such a call distributing system. A consideration of present costs and values does not lead one to believe that the success of such a plan will be great enough to be revolutionary, but certainly it is in the line of accomplishing those multitudes of small economies which have contributed to the success of similar enterprises heretofore.

It is said that there is about to be installed in an important Independent exchange a call distributing system having for its object the exact economy which I have just described; but in this plant it is proposed, not to distribute the originating calls through the agency of special answering jack operators, but by means of certain automatic mechanism which will place the call immediately upon the position of an operator who will attend to it.

A simple analogy may indicate the advantage of the call-placing system. An important railroad entering Chicago brings traffic from a large northwestern area over many separate lines; to enter the city station all trains from these many lines must cross a bridge which has two tracks only. The switching problem is one which requires that the trains in the time of greatest frequency be carried in and out over these two tracks with the least injury to the service. The bridge tracks themselves may not be said to belong to any particular division of the road, but may be at one time operating as part of a line to Milwaukee, at another as a part of a line to Seattle, and still another as part of a line to Evanston, a mere suburb of the city.

It may be thought that the foregoing statements and examples are rambling and discursive. My object is to show that the thing which we have come to call traffic in the telephone business is the real vital and fundamental thing for which the business exists. Whatever may be the attractiveness of a telephone mechanism, and whatever may be the possible importance of a new fact in the telephone science, the telephone business as a commercial art rests upon ways of handling traffic.

There is much yet to be done even in the making of exact determinations of the real quantities now involved in traffic handling; it is the object of this preliminary statement of principles to prepare for the more common-place and exact stories which are to follow.

NUMERATION BY THE NEW PLAN.

Under the ministrations of the telephone girl, it seems likely that a new system of numeration will come into vogue. Visitors to schools fifty years from now, or possibly even before that time, may hear some such recitations as these:

Teacher—Johnny, what is the product of one double two nine by eight double seven?

Johnny (after due time)—One, O, double seven, eight, double three.

T—Right, Johnny. Now you may recite the double ones of the multiplication table.

J—Once double one is double one, twice double one is double two, three times—

T—Stop, Johnny; I prefer to have you skip about a little. How much is double one times double one?

J—One, two, one.

T—Correct. Now, how much is one O times double one?

J—Double one, O.

T—Very good. You may now study your history of the rise and domination of the telephone.

Visitor (from interior of Borneo, not familiar with new system of numeration)—There seems to have been a change in the method of reading numbers since my day. Now I should have given Johnny's first answer as one million, seventy-seven thousand, eight hundred thirty-three.

T. (indulgently)—Yes, I believe there was some such system in the old days, but it has long since been discarded. Children, you may now form in one double ones abreast and march to the playground.

(The visitor goes out sadly wondering if he will ever be able to find the way to his boarding-house, for he has a faint idea that it is at No. two double something, five, on Double Two street).

The latest venture in directories is being made by the Non-Subscribers' Telephone Directory Company of Cleveland. The plan is to have in the directory the names and addresses of all the householders of the city who have no telephones. Opposite the name of each person will be given the number of the telephones nearest his residence, showing how he may be reached if the man who owns the telephone is willing to furnish messenger and telephone service gratis. The man who has no telephone pays $1 per year for having his name in the directory.

Standardization of Equipment

Report of Committee at Ohio Independent Telephone Convention

THE committee on standardization of equipment, local and long-distance, in making its report desires to present certain subjects and to make certain recommendations and suggestions in connection with them. We have not attempted to cover all phases of the questions presented, but have selected what we consider to be the more important points. Our report, then, will be necessarily a series of recommendations. We have divided the subjects into three main divisions:

First.—Local Exchange Equipment.
Second.—Subscribers' Instruments.
Third.—Long-Distance Equipment.

LOCAL EXCHANGE EQUIPMENT.

Switchboard.—In telephone work it is of prime importance to install a switchboard of the type and specifications which will meet future as well as present requirements. The promoter or those interested financially may know what the size of the switchboard should be, but beyond that they should be guided by the suggestions of a competent engineer. An experienced engineer can also give valuable advice as to the probable growth in number of subscribers. The present and ultimate size of the board having been decided upon, the next logical step is the choosing of the proper type; this naturally is largely determined by the conditions.

Capacity.—We will first consider a town which will require ultimately from 100 to 450 switchboard lines. In case cheap and reliable power is available for ringing and battery, the common battery system should be used where the ultimate growth will reach from 300 to 450 lines, and in some cases for exchanges of less than 300 capacity. If power is not available, the magneto system should be used for systems up to, say, 450 lines capacity. Above 450 lines, even though power cannot be obtained from an outside source, it is advisable to put in a common battery system, installing a gasoline engine plant for battery purposes. In the case of the small exchange giving service to a number of farmer subscribers, special magneto farm line positions should be installed on the switchboard, designed to give service to not more than 200 farmers per position. The positions giving service to town subscribers with, say, an average of two telephones per line, should be equipped with 120 to 160 lines, dependent upon the traffic conditions.

Selective Ringing.—For farmer lines it is recommended that not more than eight subscribers be connected to one line, and that a divided circuit be used for ringing purposes, four subscribers on each side. The telephone generator circuit should be arranged to give both pulsating and alternating current, thus making it possible for any subscriber to signal Central and not ring the other party line bells, or to ring another subscriber on the same line without calling the exchange. For town subscribers a full selective party line system should be installed if a common battery plant is used. In case the system is magneto, the divided ringing circuit can be used, thus making it possible to gives a semi-selective service with one and two rings on each side of the line, or a biased bell selective system may be used. Ordinarily not more than four subscribers should be connected to one line within the corporate limits of the town. It is considered good practice to use pole-changers for ringing in magneto exchanges of over 100 lines.

Multiple Type.—For exchanges exceeding 450 lines of town subscribers, a multiple switchboard of common battery type should be installed, the number of lines per position carrying, according to traffic conditions, between 120 to 160. For exchanges not to exceed 450 lines capacity, it will be necessary for the operators to pass cords, or use a transfer system.

Jacks.—For exchanges between 450 and 6,000 lines ultimate capacity, jacks of not less than 7-16 inch centers should be used; from 6,000 to 12,000, not less than 3/8 inch centers. All-metal lamp jacks are recommended. The switchboard numbering and lettering should be clearly designated on the face of board.

Line Circuit.—In the large exchanges it is very necessary that an "out of-order" tone test be used; for this reason it is advisable that the three-wire line circuit be adopted. Another advantage of the three-wire line circuit lies in the fact that it gives a clear circuit from the jack to the subscriber's instrument. Again the clear circuit makes testing for trouble easier and quicker. The size of wire to be used should be not less than No. 24 B. & S. gauge and not larger than No. 22, with an insulation of one close winding of pure silk and one of cotton. All wire should be free from cross-talk.

Cord Circuits.—Two conductor cord circuits are recommended where possible to use same, the maintenance of three conductor cords being much higher. Each cord circuit should be equipped with a positive double supervision; by positive we mean that supervisory lamps should not remain lighted while the conversation is going on.

Measured Service.—The larger exchanges are called upon to give pay-station as well as measured service. The answering jacks of pay-station lines should be grouped together, as well as the measured service lines. In such positions, a combination of two keys should be used, making it possible for the operator to talk to the calling subscriber only, the called party only, to throw both subscribers together, or to cut-in on conversations.

Distributing Racks.—An intermediate distributing rack should be furnished in addition to the line distributing rack. It is very important that the traffic load be uniformly distributed, and this can only be done by means of an intermediate; none but flame-proof jumper wire should be used. Sneak current and lightning protection should be installed in each side of all lines on the line side of the line distributing rack. Wool or silk-insulated cable should be used between lead-covered paper-insulated cable and the distributing flame.

Voltage.—In common battery plants a voltage between twenty-four and thirty is recommended; a higher pressure will make it necessary to keep the line insulation very high, in fact, higher than is necessary for good commercial transmission.

Miscellaneous.—The positive side of battery should be grounded in all cases. The local trunks between exchanges of one system should be equipped with a "busy back" tone signal. For "A" positions not less than fifteen pair of cords should be used. "B" positions should have not more than thirty incoming trunk circuits. Breast-plate transmitters have proven to be the best for A, B, and toll operators. The wiring of battery circuits, battery board and storage batteries should fulfill all requirements of the International Board of Underwriters. Red and white pilot lamps should be used in each operator's position. Chief operator's, monitor's, observation and trouble clerk's desks should be supplied to meet the needs of an exchange. Pilot lamps should be multiplied on chief operator's observation desk. This desk should also have listening taps to each operator's po-

sition. An emergency lightning circuit supplied with current from the storage battery should be wired on the common battery switchboard, one eight-candle-power lamp for each section.

Automatic Systems.—Several notable installations of so-called automatic systems (both large and small) have been made in the past few years. These plants have met the requirements expected of them, and are in a limited degree giving the best of service. (We say limited for the reason that such systems are not as flexible as those manually operated.) The day is coming, however, when the common battery and selective party line principle can be applied to the automatic, and then a straight automatic or a combination of automatic and manual systems, and no doubt will be recommended for exchanges of any capacity.

SUBSCRIBERS' INSTRUMENTS.

To enter into a detailed description of the different parts of telephones which are considered standard to-day, would mean a very lengthy article; and it is therefore proposed to call your attention to a few only of the more important requirements which should be specified when purchasing telephone instruments outside of their circuits.

Transmitter.—The transmitter should be carefully tested before purchase and should fulfill all the requirements of long-distance telephony, for the day of the purely local type of instruments is past. The enormous growth of the long-distance business during the past few years speaks for itself, and consequently the importance of choosing an equipment for the subscriber's station that will answer all of the requirements of this business cannot be too strongly recommended. The transmitter that seems to meet these requirements most fully conforms in general principles to the first Hunning granular carbon type. In order to give best service the transmitter must fulfill the following specifications to a superlative degree:

First.—Must not be susceptible to foreign noises.

Second.—Must transmit clearly and distinctly when talking into it in a low tone; and must transmit with the same distinctness and not blur when talking loud.

Third.—Must operate under a very small amount of battery current and be free from internal heating.

Fourth.—Must be hermetically sealed, rendering it absolutely moisture proof.

Fifth.—It must be of such construction as will insure it against packing.

Sixth.—Must be durable and capable of long life, simple in construction and manufactured of the very best of material.

Seventh.—The granular carbon used shall be hard, clean and of the very best quality.

Eighth.—The transmitter mouthpiece shall be made of hard rubber, or of a substance equally as strong.

The resistance of transmitters for local battery circuit should be in the neighborhood of twenty-five ohms; the resistance for common battery circuits from fifty to 100 ohms. It has been found that in common battery circuits transmitters having an average resistance of 100 ohms give excellent results.

Receiver.—The receiver, subjected as it is to more violence than any other portion of the subscriber's instrument, should be very strongly constructed. The bi-polar receiver only will be considered and should fulfill the following more important requirements:

First.—A permanent magnet must be of hardened steel of uniform grain, carefully worked and magnetized in such a manner as will insure its permanence.

Second.—Pole pieces must be of the softest and best annealed charcoal iron, and the area of their connection to the magnet must be relatively large.

Third.—The construction must be such as to render a variation in adjustment between the diaphragm and pole pieces to mechanical shock or temperature change impossible.

Fourth.—The line coils must be of No. 30 to No. 38 B. & S. gauge copper wire, silk-covered.

The resistance for common battery receiver should be from forty to sixty ohms; and that of the local battery type from 100 to 125. The receiver cord should consist of two conductors of very finely stranded tinsel, insulated from each other with a waterproof insulation and the whole covered with a most durable braid. If the tinsel is too coarse a strand, if broken, is liable to puncture the insulation and short-circuit the conductors, causing a very aggravating, as well as costly, case of trouble on account of it clearing itself and coming in again with changes in the position of the cord. The cord should be firmly fastened to the receiver inside of the heavy hard rubber shell, in such a manner that no strain will be exerted directly on the tinseled conductors, or on the coil cap of shell. In common battery work the receiver should never be placed directly in the battery circuit, but in series with condensers, or in some circuit, separate from the main circuit.

Induction Coil.—The induction coil should be designed for the greatest mutual inductance with smallest impedance. Induction coils for local battery circuits that are giving good results have a ratio of transformation of one to eight. The specifications for induction coils will vary, however, according to the receivers and transmitters with which they are used. They should be wound with the best grade of silk-covered wire, and the importance of good workmanship cannot be too greatly emphasized. In common battery work it is considered that the best results can be obtained by using circuits at the subscribers' instruments in which induction coils are not used.

Ringers.—Ringers should be capable of adjustment to great sensitiveness. Great impedance rather than resistance is desired in ringer coils that are bridged across the line. For bridging work, magneto or common battery 1,000-ohm coils give the best satisfaction wound with a comparatively coarse wire, No. 38 B. & S. gauge, with a large number of turns on long cores being good practice. They should be constructed so that there is no possible chance of the armature touching the core and so that the space between the armature and coil is very small. For series magneto eighty ohms' resistance is good practice; for bridging type magneto party line service 1,600 ohms' resistance is considered good.

Hook Switch.—The hook switch and its contact springs should be made with platinum contact points to prevent corrosion and the mechanism so arranged that contacts are sure and positive, and are released at the proper time. The springs should be long and flexible and in their operation subjected to so little force that there will be no danger of straining them beyond their elastic limit or breaking them, and should be insulated from each other with hard rubber. The parts of a telephone instrument should be connected by soldered joints, carefully made without the use of acid. Where insulating washers or strips are used in a locking device, they should be of such material as will not shrink and cause a loosening of the mechanism.

Protection and Wiring.—The instrument should be well protected from foreign currents. It is recommended that a two or three ampere line fuse be connected on each side of the line at the junction of the drop wire and interior wires, and a 1½ ampere fuse at the cable box, and that at the instrument itself when it is connected to a bare wire aerial wire circuit, heat coils and lightning arresters be used. The interior wire used should be No. 18 or No. 19 B. S. gauge copper, insulated with best quality rubber to 5-64 inch, with a durable saturated braid. The method of wiring should conform to the specifications of the International Board of Underwriters.

We desire to say that if in the selection of a telephone

instrument, wise and careful judgment is not exercised, it is certain to become one of the most costly, as well as the most unsatisfactory and temper-trying portion of the equipment to maintain. As a matter of fact, its average maintenance cost to-day is in the neighborhood of thirty per cent of the total maintenance expense of an exchange equipment, and this fact alone should show us the importance of an instrument at the subscriber's station, which is as nearly perfection as possible. Also we desire to emphasize the importance of having instruments that will give satisfactory transmission and receiving, both locally and in connection with toll lines.

Long-Distance Equipment.—In treating this subject it is desired to divide the subject into two parts, namely, long-distance equipment in offices, and equipment for use in the trunking circuits between the long-distance office and the local office.

Equipment in the Office.—Toll business is an important branch of the service and should not be neglected or slighted. The handling of this business in general should be treated entirely separate from the local business. In designing a tollboard equipment, the first thing to consider is the number of lines of various kinds and the number of calls handled over each that terminate on the tollboard. Toll operators' positions should not be overloaded by putting too many lines on a position. It is considered that one operator can hardly handle more than five busy toll lines of any considerable length. Of course, in handling short haul business to nearby exchanges this number of lines can be exceeded.

It is considered better practice to have the toll operators at the same line of boards as the "A" operators up to two or three positions of tollboard. This arrangement does away with the necessity of any service trunks, separate tollboard or switching operator, and will give quicker service. When the tollboard is installed separate from the local board, and there are more than two positions, it is recommended that two-position sections be used with all the toll lines, and trunks multipled at each section. It is considered that on the whole a three-wire line and cord circuit are best for tollboards. Good results, however, can be obtained by using two-wire circuits with made contacts in the jacks for operating cut-off relays.

For line and clearing-out signals in connection with the toll lines, it is recommended that tubular hand-restoring drops be used. We consider these signals better than any form of lamp or visual signal, from the fact that they are more sensitive; they will not confuse the operator on account of false signals, and when there are two or more stations on a line necessitating code ringing, the operator can tell what station is being called. Care should be exercised in arranging equipment on toll sections so that the operators can reach easily all the jacks and drops.

It is recommended that busy signals be used in connection with toll line multiples and answering jacks. There are certain magnetic busy signals that can be used satisfactorily; also a lamp having a considerably higher voltage than the battery on which it is operated will give very good results. On any tollboard, means should be provided for supervision from the subscriber. This can usually be best accomplished by the use of a lamp associated with a pair of cords and controlled by a relay or a set of relays.

In connection with the cord circuits at a tollboard it is desired to recommend against having cord circuits of different kinds, or cord circuits that can be changed from one condition to another by the operation of keys. The best arrangement is to have all cord circuits alike; this, however, cannot always be done. It should be possible in most cases to restrict the kinds of cords to two, as toll to toll and toll to local. It is recommended that when two kinds of cords are necessary, a division be made between the two kinds of cords which will be permanent and no keys be used for changing from one to another. It is usually good practice to have repeating coils wired in connection with the cords, so that they can be cut in or out by means of these keys. The number of these coils should be restricted, in most cases not more than two or three at a position, and they should be used only when absolutely necessary.

For wiring, it is recommended that No. 19 B. & S. gauge copper wire, having an insulation of two wrappings of silk and one of cotton, be used in talking circuits of all toll lines. No. 22 gauge wire would be satisfactory for use in connection with the cord circuits, trunk circuits and miscellaneous wiring.

Trunking Circuits Between Long-Distance and Local Offices.—It is considered that the best method of handling toll business is to have recording trunks from the exchange to the recording operators at the toll board for the subscribers to give their orders for toll connections, and to have service trunks to the toll board to the exchange for putting up connections after parties have been obtained. Where there is more than one local exchange in a city, there should be, in general, direct trunks, both outgoing and incoming, to the toll board in connection with all exchanges.

In connection with automatic switchboards, it is considered that some form of a manual board should be used in connection with the automatic subscribers' lines for use as a switching section between the toll boards and the automatic exchange. This would be done primarily so as to obtain supervision at the toll position; also, it does away with the toll operator having to operate dials at the different toll positions. For automatic exchanges having 3,000 or more subscribers, it would be well to have a separate operator's position for handling the switching section. With the exchange having a smaller number of lines the proper way of handling this matter would depend somewhat upon circumstances. It is recommended that at some point a jack multiple of subscribers' lines be considered in the installation of toll boards in connection with all automatic exchanges. In connection with automatic subscribers' instruments, it is recommended that condensers be placed in the bell circuits so that positive supervision can be obtained at the toll board.

In conclusion we desire to make the following general recommendations:

First—That in buying switchboard apparatus, none but the best of its kind be bought or considered.

Second—That when necessary to install or make any changes in any equipment, specifications should be prepared to be submitted to the manufacturers for what is needed.

Third—That after the contract is awarded to a manufacturing company for supplying the apparatus, that rigid inspection be made of the equipment as it is installed, with a view of having it installed in accordance with the specifications.

Fourth—That as far as possible, the operating companies write their own specifications, and do not allow the manufacturing companies to do this work for them.

Fifth—That more engineering talent be used by the different companies when installing new equipment or making changes in existing installations. If it is not practicable to employ an engineer regularly, the services of a competent consulting engineer should be obtained.

By following the above, we think that better equipment would be bought and installed, and better service to the public rendered. In a great many cases, a saving in first cost would be made, and we consider that in the long run there would always be a saving in the operating and maintenance charges.

M. H. Clapp,
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Committee on Standardization of Equipment.

The Old Way and The New

C. H. JUDSON

C. H. JUDSON.

NO ONE who has watched, as some of us have, the progress of the art of telephony for more than twenty-five years the surprising fact presents itself, that the greatest advancement has been made within the last five years of that period. For twenty years or more the development of construction methods proceeded only as the exigencies of the work demanded changes, and these changes were made grudgingly and often only as congestion and expansion forced the old methods out of use. Such changes as were made were compulsory, never voluntary, and the old was considered good enough for the demands of the time.

The first telephone men were, naturally, old telegraph men, telephony being merely a form of transmission of intelligence but slightly differentiated from telegraphy. The methods of the telegraph companies were adopted, telephone switchboards were modeled after the telegraph boards and telephone lines were built precisely as telegraph lines had been built for thirty years before; the chestnut or cedar pole, the cross arm with its pins and insulators, and the iron wire being the practical factors in the structure. As the multiplicity of lines in the exchange demanded a more adequate method of carrying them the cross arms, insulators and iron wire gradually gave place to the lead sheathed bundle of copper wires, and in the very congested sections the pole succumbed to the slow march of the underground conduit. In the equipment field the hand generator is giving way to the more modern method of signaling, the central battery. But stay, is it more modern after all? Let us see.

Twenty-five years ago in the state of Iowa at least one telephone plant existed in which not a single cell of local battery was used and it was a practical operating plant without a single magneto generator. It was a full and complete central battery signaling exchange and the absence of local talking batteries is explained when it is stated that the transmitters were merely receivers with extra heavy magnets, coils and diaphragms. The subscriber's station consisted of a single stroke bell on a closed circuit, with a key in series to open the circuit and thus produce action in the other bells on the line, or it was a party line proposition. The receiver hung by a little screw eye, (you all remember that screw eye) on a hook which moved to the right and left. Above or near the little box and bell was a card which told you that if you wanted to talk to John Jones you must tap your key four times and then lift the hand telephone off the hook and push the hook to the right. This act cut you off from the subscribers on the left and your connection with Mr. Jones was established. If you wanted Mr. Peter Smith perchance the card requested you to push your hook to the left. When Mr. Jones or Mr. Smith answered he lifted his receiver off the hook and pushing his hook to the right, possibly, shouted "Hello" a few times into his transmitter. If he got no response he pushed the hook to the left and shouted again and as you were on his left you shouted back and transacted your business with him and your neighbors all knew that you were talking to Mr. Smith or Mr. Jones and they were not rubbering either. If you wanted central you tapped your key once and pushed your hook to the central side and shouted your desires to be connected with someone not conveniently on your line. Central knew that you were calling because in the office a bell just like yours without the hook tapped and a little tin tag on the clapper swung slightly, this indicating which bell had tapped. By the use of a cumbersome strap switchboard you were connected to another line and the calling battery was cut off. There being no automatic supervision central listened in on you at frequent intervals and when you failed to respond the connection was taken down. The central battery consisted of a hundred gravity cells with all their attendant disagreeablenesses.

The system had one redeeming feature for a party line. If you happened to be the first subscriber out of the office you cut off your fellow sufferers on the line and they could hear only what you had to say by going out on their front porches. The system was obviously a development from the district telegraph, but its day was short and the Williams and Gilliland iron box or coffee mill generator displaced the tinkling little tappers and the baby central energy idea went to sleep for a Rip Van Winkle nap to awaken, not like Rip, an old and decrepit vagabond, but a lusty youth filled with brawn and promise, and ready to set a pace which its generator rivals could not maintain and dare not attempt.

This same exchange was largely a housetop affair. Within the business section few poles had been erected, the wires being carried mainly on roof fixtures and jumping about from block to block like the spider's thread we have seen stretched from hummock to hummock in the bog lot and with about the same degree of uniformity of direction. But the plant was rebuilt and new and modern methods (for that day) were introduced. Poles were set, some of them forty feet high, and six-pin cross-arms were attached thereto. A square tower was built over the switchboard room and the wire brought into it from the four quarters of the compass. Within the tower the lines passed through saw tooth lightning arresters and were led through number eighteen office wire, cotton covered and paraffined, to the switchboard with no bothersome main or intermediate racks between. At the board the wire passed under a couple of copper washers held down by a blued screw in the woodwork of the board in connection with the wire running to the drop and jack. The jacks were generous as to size, and the operator could easily lay her gum away in a vacant one when too busy or too tired to chew it. The plugs were not flimsy affairs, but had a most substantial appearance a handle as large as a clothes pin. The shutters on the drops were painted red and had a habit of dropping in a bunch when the young lady at the board carelessly let a plug jar forcibly back into its socket. At the subscriber's station one wire, the same white and red office wire, led through a wonderfully coiled pigtail to the telephone and another to the nearest gas pipe or possibly to a ground rod. The precise function of the ground wire was not fully understood by very many of the newly fledged managers and I once made a trip of forty miles to look up a case of trouble in which the whole exchange had gone dead in a moment, to find that the office ground had run to a ring in the top of an iron barber's pole just outside the window, the barber having moved away and taken the "ground" with him.

But to return to our exchange. When it had been rebuilt with its improved switchboards, Blake transmitters and coffee mill generators it was considered the paragon among exchanges and if you could consult the files of the papers of that town and day you would notice that it was a

*Paper read before the Iowa Independent Telephone Association at Des Moines, Iowa.

wonder to everyone that the human brain and hand could evolve such a creation. Viewing it from the present it certainly seems impossible.

In those days telephone exchanges were like chaos before creation, largely without "form and void," with no fixed plans of construction, and starting with a dozen or so of subscribers; they were not conceived beforehand, but like Topsy "jest growed." The result of course was a conglomerate network of wires on poles and houses reaching from the central office to the subscribers by the most convenient route if not the most direct. Often in the course of growth a wire would travel a mile to reach a subscriber half a mile away, and there being no adequate records of wires, very much of this roundabout work was indulged in. The wires (owing no doubt to their brief telephone experience) would not stick to their own arms and pins, but would desert them frequently for others above or below and cause the trouble shooter no end of bother.

On one occasion a lineman made a connection a mile or more away from the office to a lone wire running as he supposed to a telephone some distance off the line, but on following the wire he found that after circling about for a mile and a half more it led him back to the office by another route. Cases like this are not at all uncommon to-day where no definite territory is assigned to each main lead, and in one exchange of very recent construction I saw telephones in the same city block perfectly easy of access, connected with the office through four separate cables; and not because of any necessity, but because half baked linemen's assistants were permitted to go out and run wires as they saw fit.

Happily these conditions do not exist to-day to any great extent and they should not, for a telephone plant costs money to build and every foot of wire saved is capital to work with and every case of trouble eliminated is cents saved on the pay roll.

In the old days solicitors were seldom employed and whoever desired telephone service was compelled to come and ask for it, often many times over. Not infrequently the subscribers built their own lines, or at least paid for them, and then presented them to the telephone company, paying, of course the regular rental besides. Indeed, one company with the affairs of which I was at one time familiar, collected from its subscribers in one year the value of more than one-half of its construction by requiring them to put up for the work done to connect them. In those days you ordered your telephone in May and felt lucky if you got it by Christmas, and you took what was given you thankfully.

Contrast these conditions with those of to-day. To-day competition has placed the subscriber on the upper step and the telephone company very properly looks up at him. His every whim and desire is gratified. He orders his telephone to-day and is grieved if it is not installed to-morrow. Indeed, some of them act as though you ought to have put it in yesterday. He wants the cabinetwork of the instrument to match the woodwork of his house and he is accommodated and the telephone company thus accumulates a polyglot collection of telephones made up in oak, walnut, mahogany, poplar, maple, ebony, cherry, and what not, of every conceivable color, with shelves and without, desks, corner stands, portables, expansophones, pendulants, combinations and every other talking outfit known to the trade. The whim and fancy of the subscriber is tickled and if the installer happens to call at an inopportune time he cheerfully returns to the office and never dreams of his own convenience.

I recall one instance in which the installer first called to install a residence telephone about 8:30 in the morning, having taken with him an assortment of three telephones for selection. The lady of the house was just at breakfast and after breakfast would be engaged with some household affairs and wouldn't the installer please wait and come to-morrow afternoon. Back to the store went the three telephones. The next afternoon another trial was made, but callers were there ahead of him and again he was politely requested to postpone his labors. A third, a fourth and even a fifth effort was made to get this lady's telephone in and without success, the interval between each visit being filled in by the lady calling the office over a neighbor's telephone and making dates for the installer to come. Driven at last to desperation the patient man made a sixth call with one telephone, determined to do or die this time. As the maid opened the kitchen door he pushed her aside and carrying the instrument to the hall he hung it and connected it, despite the hysterical threats to turn him out and stormy commands to cease his work, and orders to leave, which proceeded from the mistress of the house, who wanted him to wait until to-morrow. After finishing the job the wireman turned to the lady and apologized for intruding upon the privacy of her dwelling and offered to call the police station so that she might send for an officer to take him into custody. However, he escaped, but for a week thereafter the office was advised daily of the shock to the nervous system of the lady and the extraordinary behavior of the installer was rehearsed to the manager and probably will be at every opportunity, world without end.

But we must get back to our theme. The idea of the man who builds to-day is to get a plant that will

1. Give the best service.
2. Give the least possible trouble.
3. Reduce depreciation to a minimum; conditioned always upon the income and probable growth.

Obviously a plant in which all the wires are laid in cable in conduits under the surface of the ground is the plant which will fulfill these constructional conditions; but the size of the plant and, what would follow of course, its income and its probable growth, have much to do in determining how much will go underground. Your engineer does not, however, stop at these general facts. He pries deeper into the proposition and brings to bear upon the question factors not at first apparent. The directions of growth, the quality of the population in different locations, the probabilities of mercantile or manufacturing inroads upon residence territory, and deeper still, the development of certain sections by artificial means, street railways, parks and the like, and the probable lowering of the value of certain territory by influences adverse to telephonic improvement. He must build with a foundation and the foundation must be a good one.

When Independent telephony began, scientific construction was not aimed at. It was so easy to set a few poles, string a little wire and hook up a lot of telephones that quality was sacrificed to speed and temporary building was the result, but it must be admitted that the rapid growth of the movement is largely due to the facility with which this temporary work was done. The enormous demands made upon the Independents compelled them to rush things along and only temporary work could be rushed. But now the period of baby clothes is past; the child is assuming the proportions and strength of a man and must be outfitted and equipped for a man's serious life, and the work of the skilled outfitter takes the place of the home-made garments of infancy.

"The best is none too good" was never more true than when applied to telephonic construction and equipment, for with the rapid advance of the science the best of yesterday is but ordinary to-day and is discarded to-morrow. The newest things of last year are growing old now and next year will be obsolete. But one thing about the construction cannot grow old and that is the quality of it. Styles change and improvements push along, but so long as we cannot "peer into the future" we must build with what we have to-day and so being, let us build well and make

what we have last as long as possible. Lack of quality has been one of the weaknesses of the past; let its possession be the watchword of the future, for quality pays dividends.

It has been conceded for a long while that if we remove our wires from the influences of wind and weather we remove them from the grip of two mortal enemies of the telephone manager, trouble and depreciation. If the wires are cabled, lead sheathed and buried in the bowels of the earth they are in the safest place we can put them, but if the burying is an expensive ceremony, as it sometimes is, we may still cable and sheath them, but adopting the method of older Americans than we, we may, as the Irishman said when he was telling a countryman of the ancient custom of the aborigines, "bury them up in the trees, begob," liberally construing a tree to be a tree even though stripped of its branches and transplanted to a foreign soil.

In the business districts we have for a long time tapped small cables off the large ones at blocks and buildings and been content to let it go at that. But a bright mind reasoned that what was sauce for the business goose might be pie a la mode for the residence gander and the tapping out theory was extended to the cables buried in the trees and each tap pole made a distributing pole, when presto! the cross arms disappeared, the open wires, those gold medal breeders of trouble, vanished, and the open wireless or multiple tap system was born. This multiple tap system is not the device of any one man, for several engineers contributed to bring it to its present stage, and while each one may vary his distribution slightly the development of the multiple tap is due to the efforts of the daring ones workalong similar lines. The idea is a good one and all are free to use it who will.

Briefly, the open wireless system is one in which the aerial cable is tapped at frequent intervals and from ten to twenty-five pairs taken out at each tap through a lead sheathed, rubber insulated cable filled with a heavy compound to prevent moisture from getting back into the paper cable. The open ends of the rubber covered wires are carried into a small terminal and fuse box and this box is covered with a little galvanized cover, the smaller sizes looking at a distance about as big as a tomato can, hence the appellation "can top." From the terminals the drop or service wires lead directly, without the introduction of bridle wires, to suitable insulators on the pole and thence to the subscriber's premises. In the installation of the plant in this city no tie wire or marlin is used on the drops either on the pole or at the house end; the pole insulation being porcelain knobs, the strain insulator at the house double grooved glass on malleable iron brackets (wood brackets not permitted) and G. E. split knobs for carrying to the point of entrance. The drop wire is of No. 14 B. & S. G. hard drawn copper, white core, heavy black rubber insulation and braid twisted in pairs, and is carried into the house through two hard rubber tubes all properly installed to avoid moisture entering. The rubber insulated interior wire is soldered to the drop wire inside the house. All entrances are preferably made in the basement unless dampness precludes such a course.

Extraordinary care is taken in the house work, no bare joints being left and neatness being a prime requisite. From the foregoing it will be seen that the only spot in the entire line open even to the air is the two and one-half inches lying between the terminals in the can and occupied by the fuse. This method of construction effectually defies all ordinary attacks of the elements, and line trouble is confined to actual breaks in service wires, damaged cables or defective light wires falling on the telephone construction, three causes which cut very little figure on the trouble sheet if the work is properly installed.

As an illustration of the value of the new method it may be stated that on a certain stormy day in January of this year a new open wire plant carrying about 2,000 lines in service had something more than a hundred cases of line trouble, while an all-cable plant of 1,600 lines in the same vicinity recorded ten cases of line trouble, six being from drops broken by limbs of trees falling on them and four cases arising from electric light interferences.

In the present installation of the Mutual Telephone Company in this city with an average of 1,100 lines in service on the new system the total cases of line trouble in the cable portion for the entire month of February were only five, all open fuses in terminals. Think what it means when it is known that the average cost of clearing a case of line trouble is not more than twenty-five cents. One all-cable plant with nearly 2,000 telephones in service employs one trouble man who handles all the instrument and line trouble in the entire exchange. Verily the maintenance charges in that exchange are likely to be turned into dividends.

An all-cable plant requires more poles than an open wire plant, but they may be shorter as a rule, although I do not recommend the use of any less than thirty feet in length or smaller than twenty-two inches in circumference at the top. Alley work requires height, owing to the difficulty in getting over barns with the drop wires from low poles. The lines must be well guyed, as all-cable carrying lines are subject to great strain and one cannot counter-balance the strain of a messenger loaded with a heavy cable as is possible with a multitude of separate wires. I am a firm believer in porcelain and galvanizing. Durability is a prime requisite and galvanizing pays for itself many times over. I have used a great deal of plain iron, owing to the conditions under which the work was done and under which the contract was taken and while much of it has proven satisfactory I consider it a safe rule to galvanize every piece of iron used out of doors.

The low price of cable during the last year has brought the cost of an all-cable plant down to about the cost of open wire construction and an increase in cable prices will cause a visible difference in the first cost of installation. But the vast difference in the cost of maintenance and in depreciation argues in favor of a greatly increased cost of erection of cable lines over open wire lines when permanence is to be desired.

Quality in line construction must be backed by quality in equipment. Good telephones and good switchboards on good lines are like apples of gold in pictures of silver, but poor equipment on good lines is like hitching a heifer by the side of a thoroughbred. The good the one might do is prevented by the utter inability of the other to hold the pace. And the converse is equally true. It is not that this or that manufacturer makes mechanically correct apparatus and apparatus that will talk, but the burning question is, will it last and talk to-morrow as well as to-day, and what will it cost to keep it in repair? What is a dollar extra on a telephone if it costs a dollar a year less to keep it going? Fortunately for us all the day of the cheap telephone is fading away and the manufacturer is no longer afraid to build the right sort of telephones and bravely ask the right price for them. This is no defense of high prices, but too much money has been wasted in the past on cheap telephones and boards, built cheaply to sell to those who must have them.

The modern telephone plant has its own house to live in, a house that will not burn and that defies the insurance agent. It wants no fellow lodgers and prefers that its neighbors keep clear of its premises.

This telephone story is good because it is said to be true. A certain business man had occasion to call up his wife, but got the wrong number and another lady answered the call. "Did I leave my suspenders up there?" he asked. "No, you didn't," she snapped, and the shock with which she hung up the receiver went into central like a bolt of lightning.

Manufacturers' Department

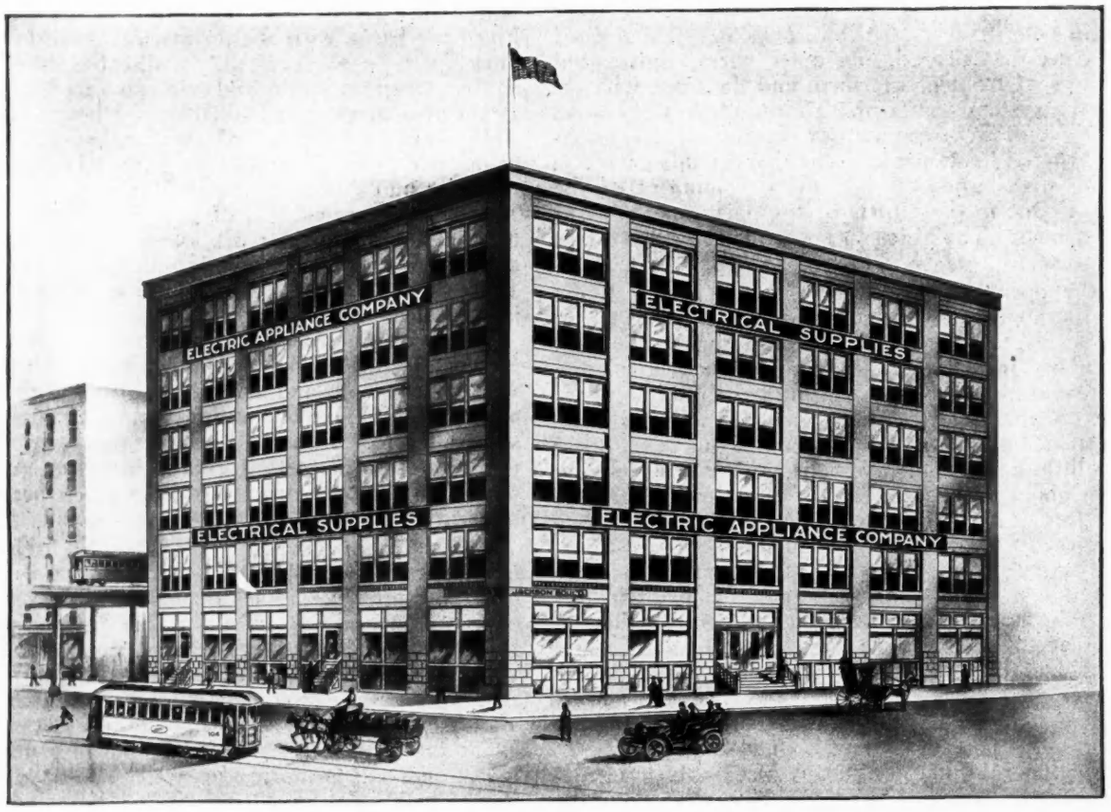
ELECTRIC APPLIANCE COMPANY.

Fifteen years ago the electrical supply houses in the country figured that the proper thing to do when a customer sent in an open order, without specifying any price, was to charge him as much as they thought he would stand. The supply houses also did a great deal of substituting and split up shipments to suit their convenience. This was the condition of affairs when Willard W. Low and Thomas I. Stacey decided that there was room for a supply house whose policy would be entirely different from that in vogue. The Electric Appliance Company of Chicago was incorporated about fourteen years ago and the business was established in a very small way. Of course, at that time the number of articles in the electrical supply business was only about ten per cent of the number that is now carried. The policy that the company then established of making prompt and complete shipments, and billing material to their customers on open orders at the same price that would be given on written quotations, has been maintained ever since.

The company believed that it would be known by the specialties that it would handle, and therefore made at that time (and always has made since) a special effort to handle only the best specialties. Among the first the company secured were Packard incandescent lamps and Paranite rubber-covered wire. Several months later "O. K." weatherproof wire, Packard transformers and Whitney instruments were added to the list. The phenomenal success of the Gutmann wattmeter in the three years that it was on the market, bears out the correctness of the company's idea.

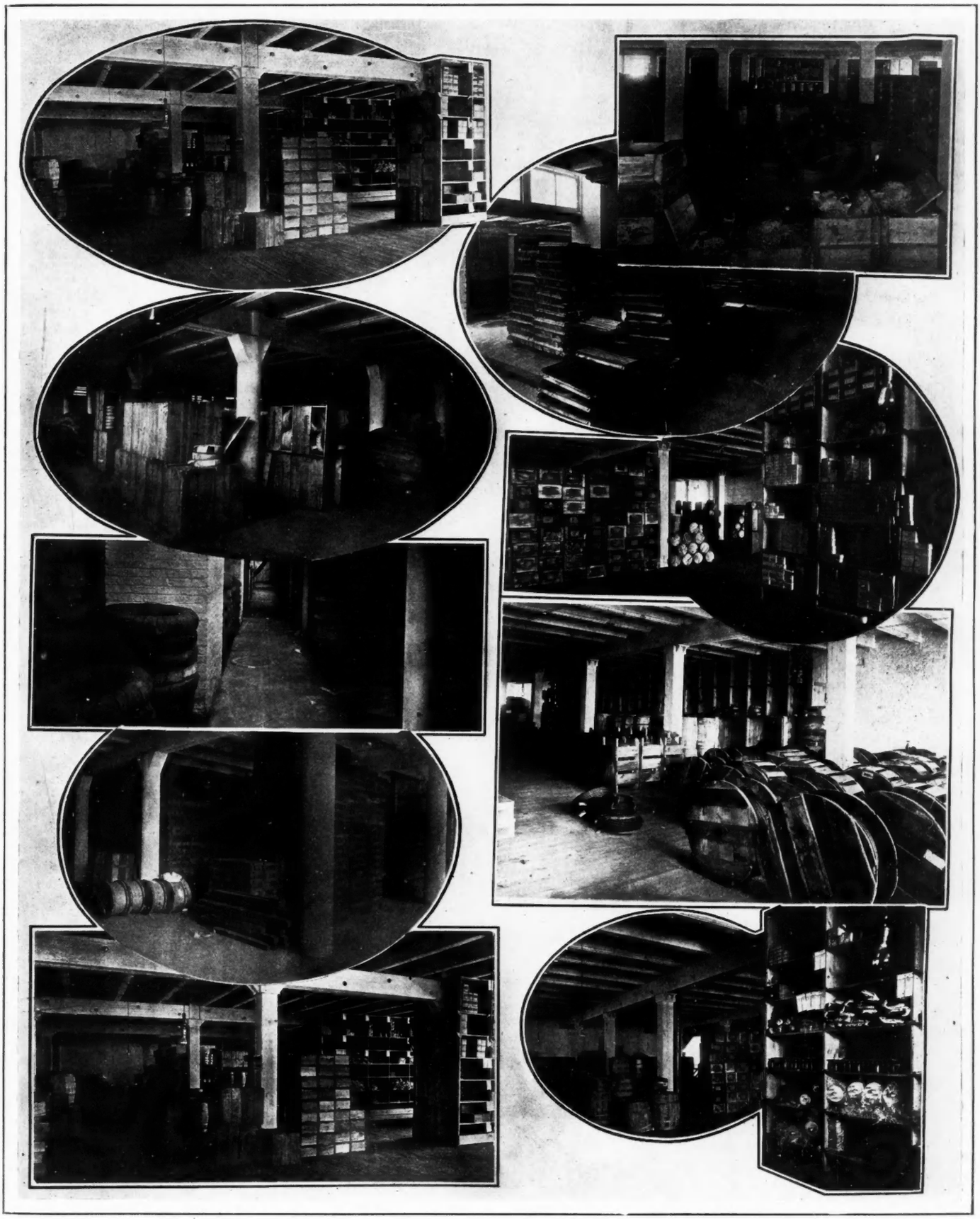
The first quarters secured by the Electric Appliance Company were at 242 Madison street, which comprised the first floor only. As the company's business increased, which it was bound to do on account of the company's policy, it was found necessary to take in the basement, and about a year afterward the two upper floors also were added, giving ample facilities for handling the business, which was growing every day.

Six years ago it was found necessary, in order to handle the growing business, to engage still larger quarters, and



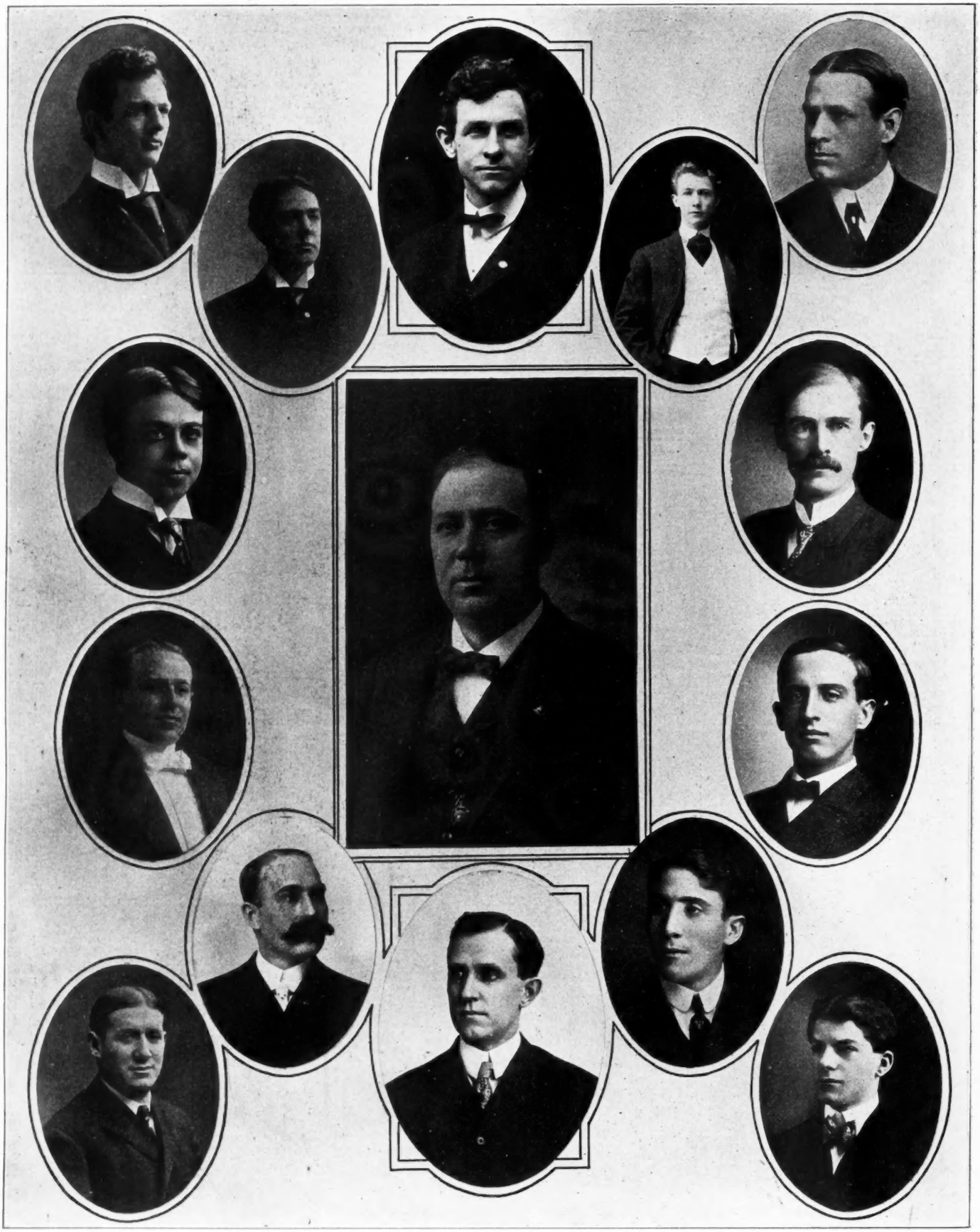
the double five-story building and basement at the corner of Van Buren and Jefferson streets was secured. This was ample for about two years, at which time warehouse No. 2 was established at 165 South Canal street, for the accommodation of cross-arms, insulators and electro-galvanized conduit, and other heavy and bulky material. This arrangement worked out very nicely until the business had grown so that the Electric Appliance Company was in danger of losing its reputation for making prompt shipments on account of being so crowded. It was then decided that the company would need about double the floor space it was occupying.

Last summer the architects for the company were given instructions as to what was required in order to make a model supply house handling the large volume of business at that time, also allowing for a considerable increase, and the building that the Electric Appliance Company now occupies at 134-140 West Jackson boulevard is the result. This



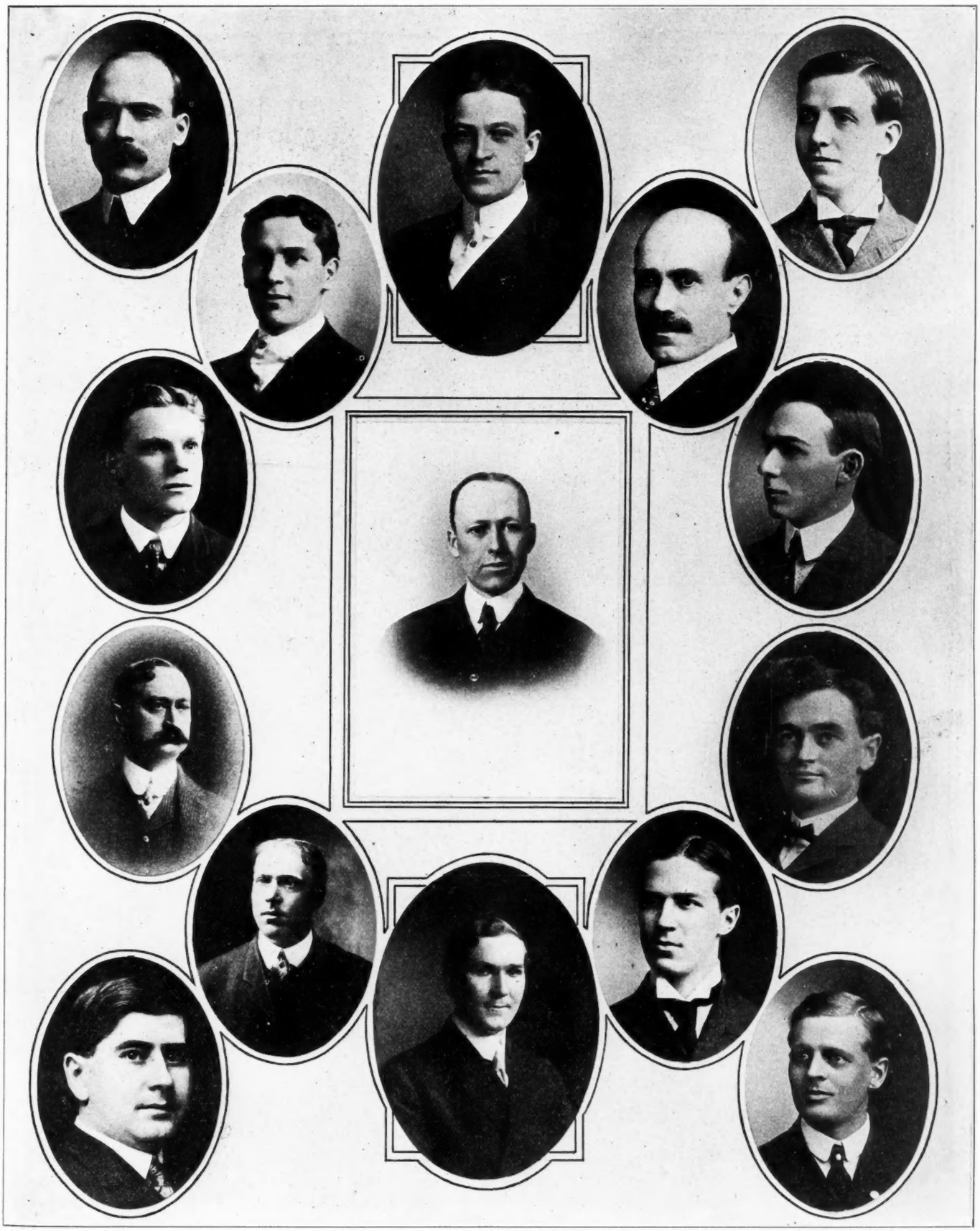
Porcelain and Insulator Department.
"O. K." Wire Department.
General Wire Department.
Cross Arm Department.
Telephone Supply Department.
Glassware Department.
Construction Material Department.
Protective Apparatus Department.
Rubber Wire Department.
Battery Department.

VIEWS IN NEW BUILDING, ELECTRIC APPLIANCE COMPANY, CHICAGO.



E. J. Wallingford. H. N. Remington. E. C. Brown. A. O. Einstein. W. P. Upham. J. K. Aline. C. A. Pierce. Willard W. Low, President. S. A. Hall. C. A. McCarthy. Ephraim Behrend. L. E. Wolfe. H. J. Stow. W. T. Deason. A. F. Le Jeune.

OFFICERS AND REPRESENTATIVES, ELECTRIC APPLIANCE COMPANY, CHICAGO.



I. J. Smith.
William Gerler.
F. J. Cram.
C. C. Hillis.

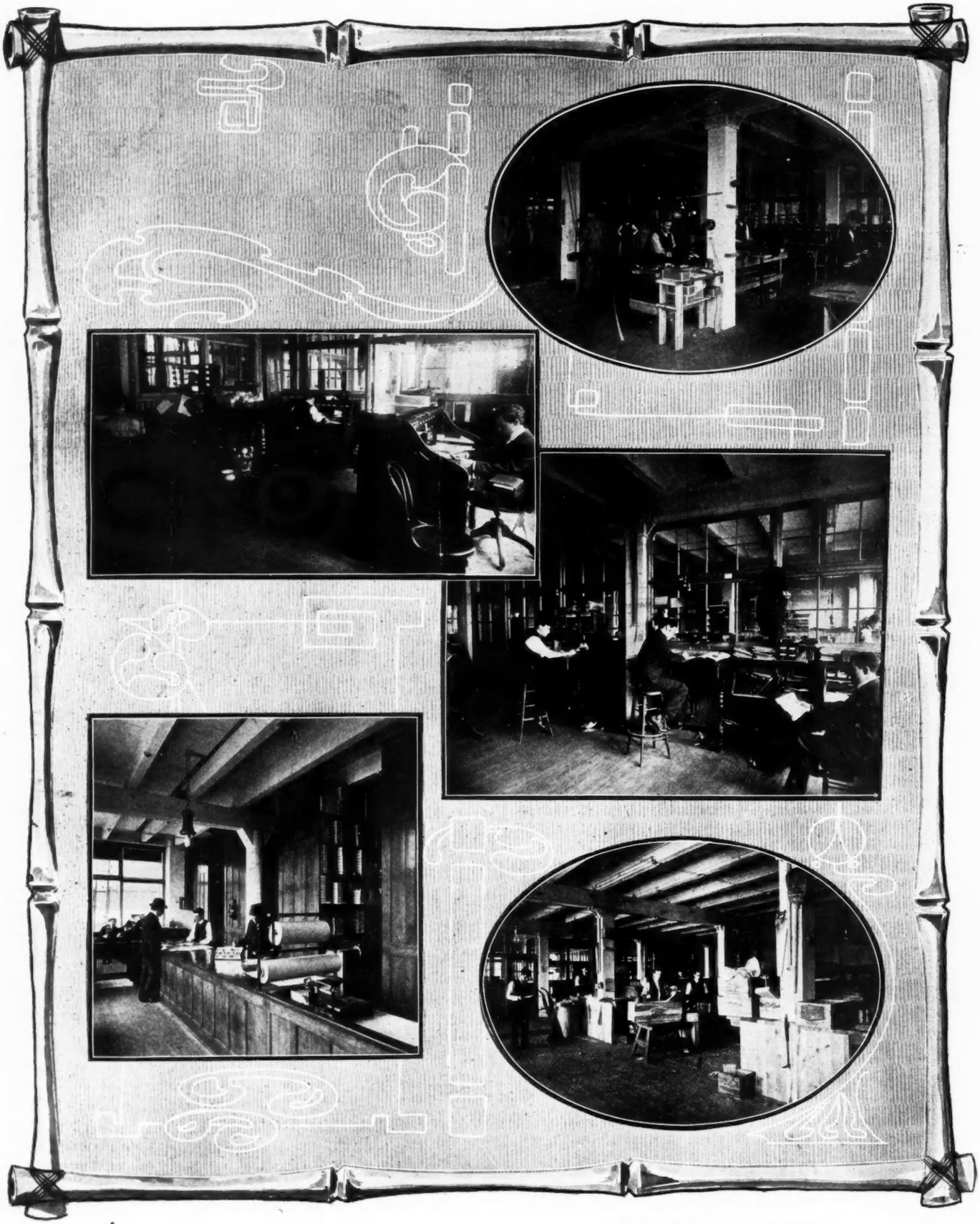
R. Le Bron.
Phil Cass.

P. R. Poole.
Thomas I. Stacey, Sec. and Treas.
J. W. Neil.

S. D. McDona'd.
David McMakin.

E. W. McClelland.
E. V. Brown.
J. P. McMullen.
F. D. Schwartz.

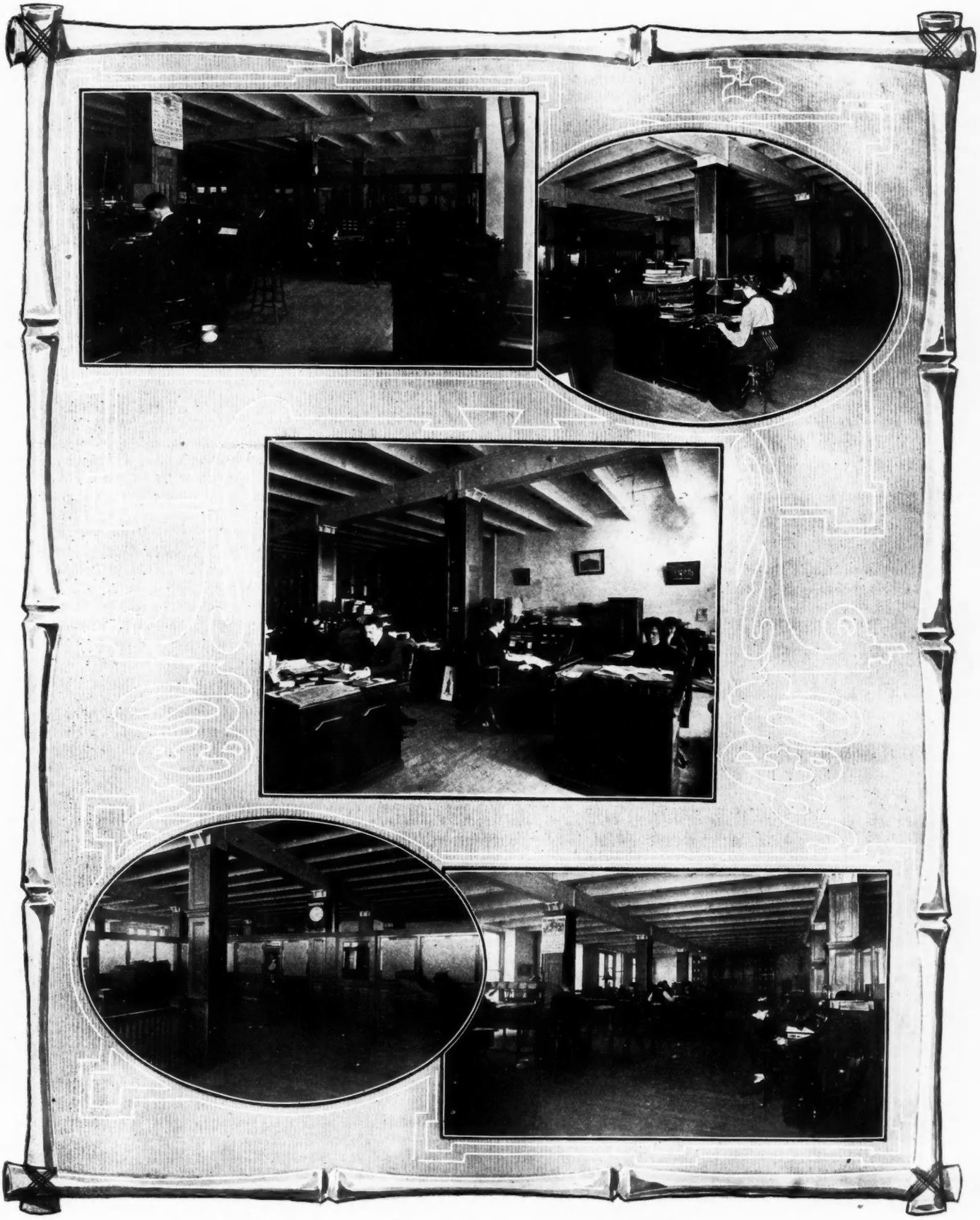
OFFICERS AND REPRESENTATIVES, ELECTRIC APPLIANCE COMPANY, CHICAGO.



Telephone Department Office.
City Sales Department.

Telephone Assembling Department.
Shipping Department Office.
Packing Department.

VIEWS IN NEW BUILDING, ELECTRIC APPLIANCE COMPANY, CHICAGO.



Auditing Department. Reception Room. Sales Department. Office Sales Department. Counting Room.

GENERAL OFFICES, ELECTRIC APPLIANCE COMPANY, CHICAGO.

building is six stories high and includes a large basement, having a frontage of 100 feet on West Jackson boulevard, and 100 feet on Desplaines street. The largest stock of weatherproof wire west of the Allegheny mountains is carried in the basement of the building. "O. K." weatherproof wire has a reputation among telephone men second to none, and the company finds that its stock has to be replenished weekly. Galvanized telephone wire also is carried in the basement. Heavy material such as cross-arms, electro galvanized conduit, etc., is carried on the first floor.

The receiving department and the city sales department also occupy the first floor. The company aims, in its city sales department, to fill orders over the counter more quickly than it has ever been able to do before, believing it will only be a short time when its reputation in the city will be unexcelled.

The general offices of the company occupy the entire second floor, one-half being given to the sales department and the other half to the auditing department. Special provision has been made for the comfort of out-of-town customers, and a cordial invitation is extended to them to inspect the company's new quarters. The remainder of the building is given over entirely to the large stock carried by the company. Two freight elevators facilitate the handling of all material, and the company is in better shape than ever before to not only handle its present business, but to allow for a large increase. The location of the building being in close proximity to nearly all of the freight depots, the company is in position to make its usual prompt shipments.

In addition to the large stock carried by the company in Chicago, the branch house located at San Francisco carries as large a stock as there is on the coast. This branch house was established last year, and the business has been very satisfactory. C. C. Hillis, who occupied the position of auditor for the company in Chicago for a number of years, is general manager of the Pacific Coast branch, assisted by F. J. Cram, who represented the company in that territory before the branch house was opened. The same policy that has made the company a success in Chicago is being pursued in San Francisco.

Prior to the establishment of the San Francisco house, the company put in a stock of staple supplies at Dallas, Texas, in charge of W. H. Brooke, who is well known in the southwest, having been located there for the past ten years. This stock at Dallas has been increased from time to time, as it was found necessary, in order to take care of the business.

TELEPHONE DEPARTMENT.

About ten years ago, when the Independent telephone movement first started, the company put S. A. Dinsmore in charge of its telephone department. Ample space was given him for a shop, and the "Eaco" series telephone was placed upon the market. During the first year the company installed many complete telephone exchanges, among them being the ones at Hoopeston, Illinois; Muncie, Indiana; Paxton, Illinois; Ottawa, Kansas. The 500-drop board at Muncie, Indiana, was operated for several years by the Independent company, and after it sold out to the Bell company the board was still operated for two years. Upon the exchange being rebuilt this board was added to the equipment at Ottawa, Kansas, and is still in operation, there being now eleven sections in use at that point.

The company has made a specialty of series telephones for exchange use and bridging telephones for toll lines, always keeping pace with the improvements that have been made from time to time. It has also made a specialty of intercommunicating systems for factories, offices, etc., having now what it considers the best automatic telephone for this purpose. Some time ago the company placed upon the market a weatherproof telephone, which has met with success among the interurban railways and mines throughout the country.

The company has had the agency for P. C. & W. annunciators for a number of years, and the telephone department has utilized these is making up its hotel system. A. P. C. & W. annunciator with a telephone plug switchboard is used for the hotel office equipment, and a number of different styles of special hotel telephones for the hotel rooms. Among the hotels which are equipped with switchboards and "Eaco" telephones are: Hillman House, Birmingham, Alabama, 200 telephones; Wilson House, Salt Lake City, Utah, 200 telephones; New Niagara House, Peoria, Illinois, 100 telephones; Reed House, Chattanooga, Tennessee, 100 telephones; Northern Hotel, Billings, Montana, 75 telephones; Park Hotel, Livingston, Montana, 50 telephones.

Among the electrical contractors to whom the company has furnished hotel telephones are: Scott Conduit Company, Los Angeles, California, 300 telephones; W. G. Schuwirth & Company, San Antonio, Texas, 200 telephones.

All correspondence relative to telephone apparatus, protective devices, etc., is handled through the telephone department.

SALES DEPARTMENT.

P. R. Boole, general sales manager, has been with the company for the past twelve years in various capacities, including five years' experience on the road. Prior to going with the company he was connected with several electrical manufacturing concerns. All advertising, making quotations, compiling catalogues and entering orders is done by this department. The twenty-five people employed in this department are ample at present for handling this branch of the business.

ORDER DEPARTMENT.

One of the most important things in handling a customer's order is to see that it is entered correctly on the company's shipping blanks. W. P. Upham is in charge of this department, having been with the company for the past eight years, both in the office and representing it in the state of Michigan. Prior to going with the company he was for a number of years with the Thomson-Houston Electric Company. Very few mistakes are made in this department, owing to the fact that each order is scrutinized very closely by Mr. Upham, who also oversees all quotations, both on general supplies and on the electric light specialties that the company handles.

AUDITING DEPARTMENT.

J. W. Neil is in charge of the auditing department, having been with the company for eight years. This department includes the claim department, purchasing department, credits and collections, and all bookkeeping. With the aid of thirty assistants the work is promptly handled.

SHIPPING DEPARTMENT.

The department that interests a customer possibly more than any other is the shipping department, which has been ably handled by B. J. Wallingford for the past ten years. Mr. Wallingford has charge of all country orders that come into the house, and with the aid of twenty assistants takes care of all necessary pick-ups and sees that the stock regularly carried by the company is kept up. The Electric Appliance Company has always made it a point to give this department special attention, as it is owing to the fact that they have always been able to make prompt and complete shipments that they have had such phenomenal success. Special attention is paid in this department to freight shipments, to see that the customer's wishes in regard to routing is followed to the letter, and where a customer does not specify the routing care is used to see that the goods are sent over the right route. The company appreciates it very much when the customer specifies in his order the route over which he wishes his goods shipped.

RECEIVING DEPARTMENT.

After the goods are packed and ready for shipment they are turned over to the receiving department, which is in charge of Ephraim Behrend. Special provision was made when the new building was erected so that four wagons can be loaded at once from this department, and as the building is in close proximity to all the freight depots there is no delay in getting a customer's goods shipped promptly. This department receives all the material that comes into the house either for stock or orders, and experienced men inspect everything closely, so that there is no possibility of a customer receiving any material that is not up to the standard.

CITY SALES DEPARTMENT.

Electrical supply houses have never been able to give customers who call upon them the prompt service that houses in other lines are able to give. A special system has been installed by the company to handle the city business with the greatest possible rapidity. This department is in charge of S. A. Rall, who has represented the company for the past ten years in the city of Chicago. This department comprises a store, and carries a large stock for the rapid handling of orders. The placing of city orders, or any information in regard to city orders, is handled by this department.

Twenty telephones in the various departments are connected to the company's private exchange, Monroe 2321.

A description of the Electrical Appliance Company, its remarkable progress and up-to-date methods of doing business, would hardly be complete without more than passing mention of the men at the head of this institution, whose aggressiveness, integrity and all around business ability have made possible its success.

Willard W. Low, president, combines in a large degree those qualities that always are found in a man who successfully directs the destiny of an industry of this sort—constructive power, a keen appreciation of the needs of the trade he serves, and rare executive efficiency. He is a man who "does things," a "pusher,' if we may use the expression, whose sole aim to make the Electric Appliance Company one of the greatest concerns of its kind in the United States has been accomplished. He is a shining example of a self-made American and successful business man.

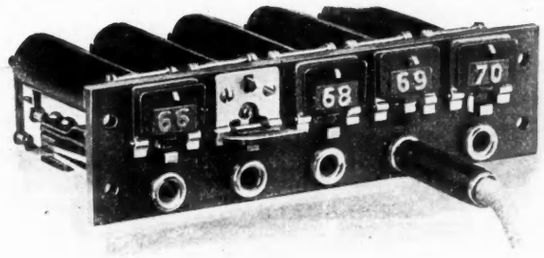
Thomas I. Stacey fills the important offices of secretary and treasurer with the Electric Appliance Company and the growth of this well known supply house, and the strongly fortified position it to-day occupies in the electrical field, is due in no small measure to his energy and judgment. He is known as a shrewd business man and financier, which coupled with his wide knowledge of the electrical trade and its needs, makes him invaluable in his present position.

"THE MONARCH IDEA."

During the last year or two a great deal has been heard about the "Monarch idea." Operators in the Independent field refer to it as being one of the valuable features in telephone equipment. The "Monarch idea" seems to be "simplicity." This simplicity is seen in the design and construction of all Monarch apparatus, and has probably done more to exploit its goods than any other one thing.

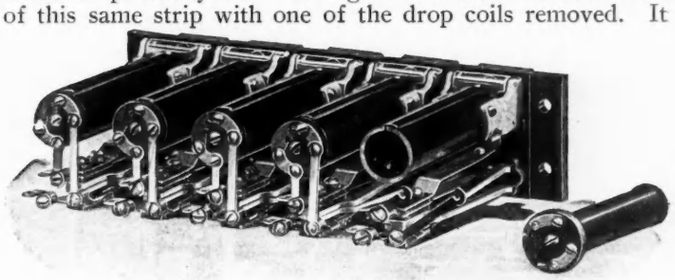
The removable shelf idea embodied in all Monarch compact type telephones is probably familiar to almost every one. The hook switch, induction coil and generator are mounted on shelves in the usual manner, but these shelves can be removed from the cabinet without disturbing any of the permanent wiring. To make this possible, the wiring of the backboard extends to the shelves through contact bars. The wiring of the shelves extends to binding posts beneath the shelves. Each of these binding posts engages one of the contact bars when the shelves are in place, and a lock nut clamps the two parts together so as to hold the shelves securely, and at the same time afford a perfect connection. To remove any of the parts it is only necessary to loosen the lock nuts and pull the shelves forward.

The foregoing idea of assembly has been favorably commented upon by all who have seen it, as the advantages to be derived are readily appreciated. A similar arrangement has been made in the Monarch combined drop and jack. The coil of the drop can be removed from the shell without breaking any soldered connections and without affecting the adjustment of the armature. The armature is mounted in front of the coil and is absolutely permanent in its adjustment. By having the armature in front of the drop, the Monarch company claims to have secured two advantages. One is the feature just mentioned—that of being able to remove the coil without affecting the adjustment—and the other is the reduction in the length of the shutter hook with a corresponding reduction in the amount of power required to throw the drop. A great many comparative tests have been made, and it has been proven that this drop will operate on a minimum amount of current.



FRONT VIEW MONARCH COMBINED DROP AND JACK.

In Fig. 1 is shown the front view of a strip of five combined drops and jacks. In Fig. 2 is shown the rear view of this same strip with one of the drop coils removed. It will be seen that the connections from the drop to the jack are made by means of German silver strips, which are fastened to the jack by machine screws. At the drop end these German silver strips are formed in the shape of a hook which can be slipped under the heads of machine screws in the coil heads and thus securely fastened. In this way the drop coil is locked within the shell, but when the coil is to be removed the screws holding these strips are loosened and the strips turned down so that the coil can be slipped out.



REAR VIEW MONARCH COMBINED DROP AND JACK.

The Monarch company recently has designed a type of switchboard which has been heartily received by operating companies. A cut of this new cabinet is shown in the advertisement in the front part of this paper. It will be seen that the board is especially designed for small exchanges of from 100 to 200 lines, and is arranged so that either one or two operators can be used. No special chair is necessary, owing to the fact that the table of the board is

no higher than an ordinary flat-top desk. The pigeon holes at either side of the drop and jack cabinet are a big convenience to any operator, and especially where toll lines enter a local exchange. The woodwork of this cabinet is quarter sawed oak, and is finely finished and substantially built throughout.

A new catalogue fully describing all types of Monarch switchboards is ready for distribution, and will be mailed to any one interested enough to request a copy. The booklet is handsomely gotten up and contains more than fifty half-tone illustrations, which show each and every part of the board, as well as a few of the complete equipments. Descriptions are given where necessary, and it will interest any telephone man to look over the contents of this booklet. Anyone in the market for a new switchboard will do well to communicate with the Monarch company. Complete specifications, together with sample parts and a copy of the new switchboard catalogue, will be mailed to interested parties. All inquiries should be addressed to the Monarch Telephone Manufacturing Company, 12-16 South Clinton street, Chicago.

WEIS SPECIALTIES.

Two specialties that are finding warm favor in the telephone field are the swinging telephone bracket and the oak "Midget" card index outfit, both manufactured by the Weis Manufacturing Company of Toledo, Ohio, and illustrations of which are herewith shown.

The swinging telephone bracket is neat, simple and practical; it can be attached to either side of a desk and is certainly one of the most convenient step-saving office fixtures on the market. There is nothing about it to get out of order; it will last forever. Pull and it is ready for use; push and it is out of the way. It is made of heavy steel wire, so that it is rigid, and has a handsome oxidized copper finish. It is ornamental, as well as highly useful, and weighs only twelve ounces.

The oak "Midget" card index outfit comes in various forms. It is a handsome little desk tray, especially handy where only a limited number of cards are used. Just the thing for memorandums, addresses and other information one desires to have handy. These outfits are compact, convenient and useful. Each is equipped with a 20-division A to Z index and 100 ruled cards. The capacity of these trays is from 150 to 250 cards.

Besides these the company manufactures a full line of card index cabinets, vertical letter files and other office supplies and equipment.

For further information and prices address the Weis Manufacturing Company, Toledo, Ohio.

IN DEFENSE OF SECRET SERVICE SYSTEMS.

Through a combination of blunders an article in the June TELEPHONY, which was prepared in London and forwarded to us through courtesy of our English contemporary and representative, *Electricity*, was not given proper credit. The heading was prepared for the article and the type forming it was electrotyped, but in the confusion incident to "making up" the magazine last month, this electrotype could not be found. In its absence another was substituted, which failed to carry with it the explanation that the article treated English practice only and had no bearing on American product. As a consequence of this negligence we have the following complaint, which is fully warranted and we trust self-explanatory:

CHICAGO, June 16, 1905.

Editor Telephony,

Dear Sir: In the June TELEPHONY appeared an article entitled "Arnheim Party Line System," which seems to condemn all other lock-out and selective ringing telephone devices. As this article was unsigned, it apparently has the endorsement of TELEPHONY, and I must protest against its numerous misstatements, which are a direct reflection on the secret-service telephone system made by the Baird Manufacturing Company, and which has been advertised in your journal for several months past.

I would not criticise the article in question had it been signed or credited, but it is not fair to your readers or advertisers to publish matter which is filled with error.

It states: "What were known as lock-out systems were next introduced, but by the time all these advantages had been obtained the whole instrument was a mass of complicated mechanism, needing delicate adjustment and constant supervision." This description does not apply to the Baird secret-service system (selective ringing and lock-out), because the mechanism is exceedingly simple, and testimonials from several operating telephone companies bring out the remarkable fact that the cost of maintenance is actually lower than ordinary bridging telephone service. This is due to the fact that prevention of "listening in" greatly decreases the wear and tear on telephones and batteries.

Again the article states: "Should one party fail to carry out the necessary functions properly, the whole line was blocked and other subscribers were unable to make use of it until the offending party's telephone had been reset." This criticism does not apply to the Baird system, for the operator has absolute control of the line at all times, whether a subscriber's telephone is on or off the hook.

Again I quote: "Experience, however, has shown the fallacy of these systems." On the contrary, experience has demonstrated the Baird (late Norstrom) system is an unqualified success. Our customers give us the most glowing testimonial letters, copies of which we are always glad to furnish; but the infallible test that our system is satisfactory is to be found in repeat orders, which are constantly coming in. The Home Telephone Company of Plattsburg, Ohio, which has had our system in service about five years, has just favored us with a repeat order. Also the Williamtown and Owenton Telephone Company, Williamtown, Ky.; Southern Union Telephone Company, Anna, Ill.; Forreston Mutual Telephone Company, Forreston, Ill. Last January a Nebraska telephone company ordered a few telephones for trial. These proved so successful that it ordered 100 more and advises us that it soon will need another 100.

The statement is made that "of the successful party-line systems now in vogue all have the same drawbacks, that only four can be connected to a line." This is a mistake, for the Baird system provides for as many as twenty parties on a line.

As described, the Arnheim system requires a separate pair of wires from each subscriber's telephone to an automatic sub-station, which involves a great deal more wiring than the Baird bridging system. The Arnheim method of calling is very slow, and the subscriber cannot tell whether the line is busy until he has attempted to call central, whereas with the Baird device he can tell from a visual signal whether the line is busy or open at a glance without making a motion. To call an Arnheim subscriber, the operator must use her selector and then her ringing key, whereas with our system the selector automatically rings the subscriber and repeated rings can be made in the usual manner. The Arnheim system automatically prevents the operator from making another call for fifty seconds should she be unable to secure a desired connection, whereas the Baird permits her to call another subscriber immediately.

While the Arnheim device "is now under consideration" by foreign telephone companies, our system is in daily use by over twenty different telephone exchanges, whose orders are ample proof that the Baird system is an unqualified success.

Believing that the article I have criticised has done us an injustice, I have taken considerable space to explain facts to your readers, and trust that any who may have been prejudiced will write us for full information on any points I have failed to make clear. Respectfully yours,

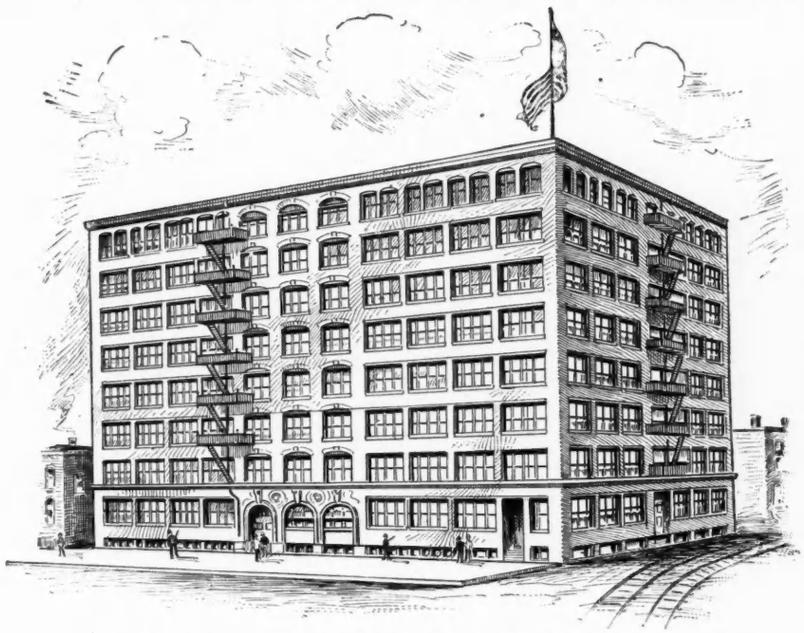
EDWARD P. BAIRD.

"How to Use Sulphate of Iron on the Farm" is the title of a booklet issued by the American Steel & Wire Company, with offices in New York, Chicago, Denver and San Francisco. While it has nothing to do with the telephone business, it concerns thousands who use rural telephones. The booklet should be in the hands of every farmer and may be had for the asking.

BAIRD MANUFACTURING COMPANY'S PLANT.

Herewith are presented a number of views of the factory and premises of the Baird Manufacturing Company, 3 Michigan street, Chicago, the makers of the well-known Baird Pay-Station, which are used by a large number of the telephone companies in the United States and Canada and foreign countries.

The Baird Manufacturing Company was organized by Edward P. Baird, its president, in the summer of 1900, to manufacture a toll pay-station invented by him. At that time the cheapest mechanical toll collector on the market sold for $30, and Mr. Baird, forseeing the great possibilities for the extensive use of a lower-priced machine, brought out the "No. 4 Triplet" pattern at a price of $10. The success of this machine was phenomenal, as the low price made it possible for telephone companies to use it extensively. Finding that because of the increased production it could afford to lower prices the Baird company reduced the price of its three-slot pay-station to $8, and since that time has introduced its new model machine, which has new and more expensive features, but the price has not been raised.



HOME OF THE BAIRD MANUFACTURING COMPANY, CHICAGO.

At the recent National-Interstate telephone convention E. W. Dunaway, president of the Texas Independent Telephone Association and also president of the Citizens' Telephone Company of Paris, Texas, complimented Mr. Baird on being a public benefactor in originating and supplying a low-priced telephone pay-station which could be extensively used. Pay-stations are responsible for measured service and measured service is practical beyond dispute, especially in larger cities. The Baird pay-station is a pioneer in its field.

During the few years of its existence the Baird Manufacturing Company has had to move its factory twice to secure adequate facilities for transacting its increasing business, and has absorbed the following five corporations: American Toll Telephone Company, Cleveland, Ohio; Buffalo Automatic Manufacturing Company, Buffalo, N. Y.; Western Japanning Company, Chicago; Meyercord-Batterman Company, Chicago; Norstrom Lock-Out & Telephone Manufacturing Company, Chicago. The last mentioned and latest purchase promises to develop into a great department. The Norstrom lock-out telephones are now in service at more than twenty telephone exchanges and have proved an unquestioned success. Not only do these customers give glowing testimonials regarding the complete success of the system, but show their satisfaction by giving repeat orders.

While the Baird company has heretofore made only mechanical pay-stations, yet it has for five years been quietly at work developing inventions of Mr. Baird in electrically acting rapid service nickel machines and rapid service call registers. The new Baird nickel machine is claimed to be a marvel of simplicity for accomplishing a complicated series of functions. The perfection of a machine which will meet all the requirements for this class of service is one of the most difficult problems in telephone engineering. Owing to the fact that at the time Mr. Baird began work on this problem very few inventors had accomplished anything, and also because of the fact that he used mechanical action very largely in his plans the Baird company has secured patent claims which seem to largely cover the basic principles of a truly "rapid service" pay-station.

The Baird transmitter arm, with its permanent friction feature, is gaining wide favor. One of these arms was attached to a machine and after 100,000 motions had been given the change in the friction was hardly perceptible.

Another of Mr. Baird's inventions is a telephone time stamp, by means of which toll tickets may be printed, with the time conversations were commenced and finished. This machine is used widely by telephone companies.

The enterprise and aggressiveness of the Baird Manufacturing Company is shown by the fact that it employs a force of five or more model makers, constantly at work developing new inventions, and the company's motto is, "We don't wait for the demand; we anticipate it; our goods prove it."

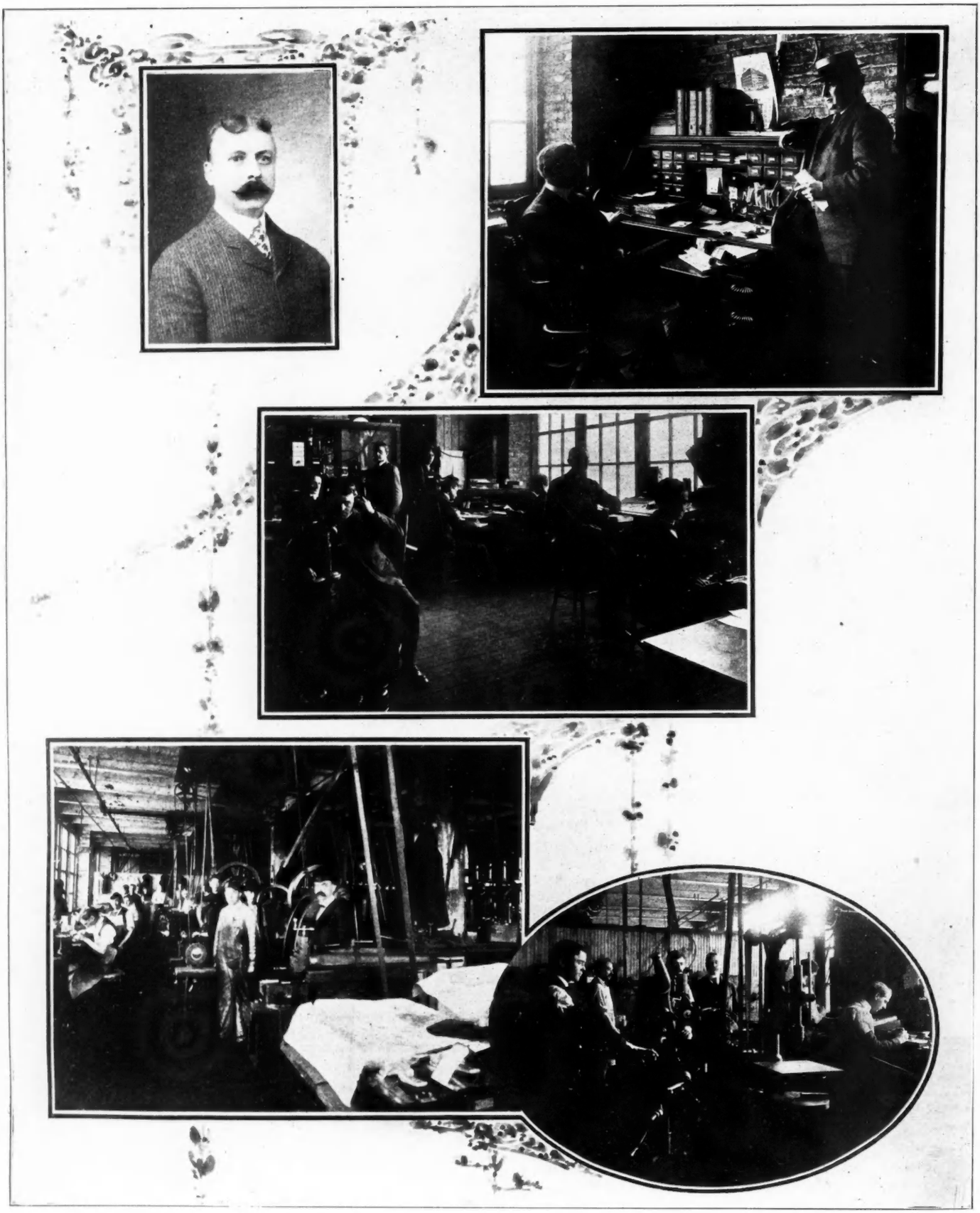
The popularity of the Baird brand of goods is well shown by the fact that owing to the increasing demand it has been made necessary to increase the factory space since January 1, 1905, over 50 per cent and the working force over 100 per cent.

Regarding the personality of the president and treasurer of this company, Edward Payson Baird, we may say that he was born in Philadelphia in 1860, and began his business career in New York in 1875 with the American Clock Company, by whom and their successors, the Seth Thomas Clock Company, he was employed for nine years; after which he organized the Baird Clock Company with factories at Plattsburg, New York; Montreal, Canada, and later one at Chicago. In 1900, when the Baird Manufacturing Company was organized, the clock business was practically discontinued, and since then Mr. Baird has devoted his attention to inventing and manufacturing telephone pay-stations and specialties.

It is rare that inventors are able to reap the full benefit of their genius, and Mr. Baird is one of the exceptions, owing to the fact that he was a practical manufacturer before turning his attention to invention. Though the Baird Manufacturing Company is a corporation, yet Mr. Baird owns all of the capital stock, excepting a few shares held by members of his family.

One of Mr. Baird's inventions, of which there are millions in use throughout the United States and Canada, is the metal spring used in street cars to hold advertising cards in place.

The success of any business enterprise is very largely dependent upon the force of capable managers of its various departments and in this respect the Baird Manufacturing Company is exceptionally favored. O. C. Dennis, the engineer and general manager, formerly with the Western



Edward P. Baird, President and Treasu rer.

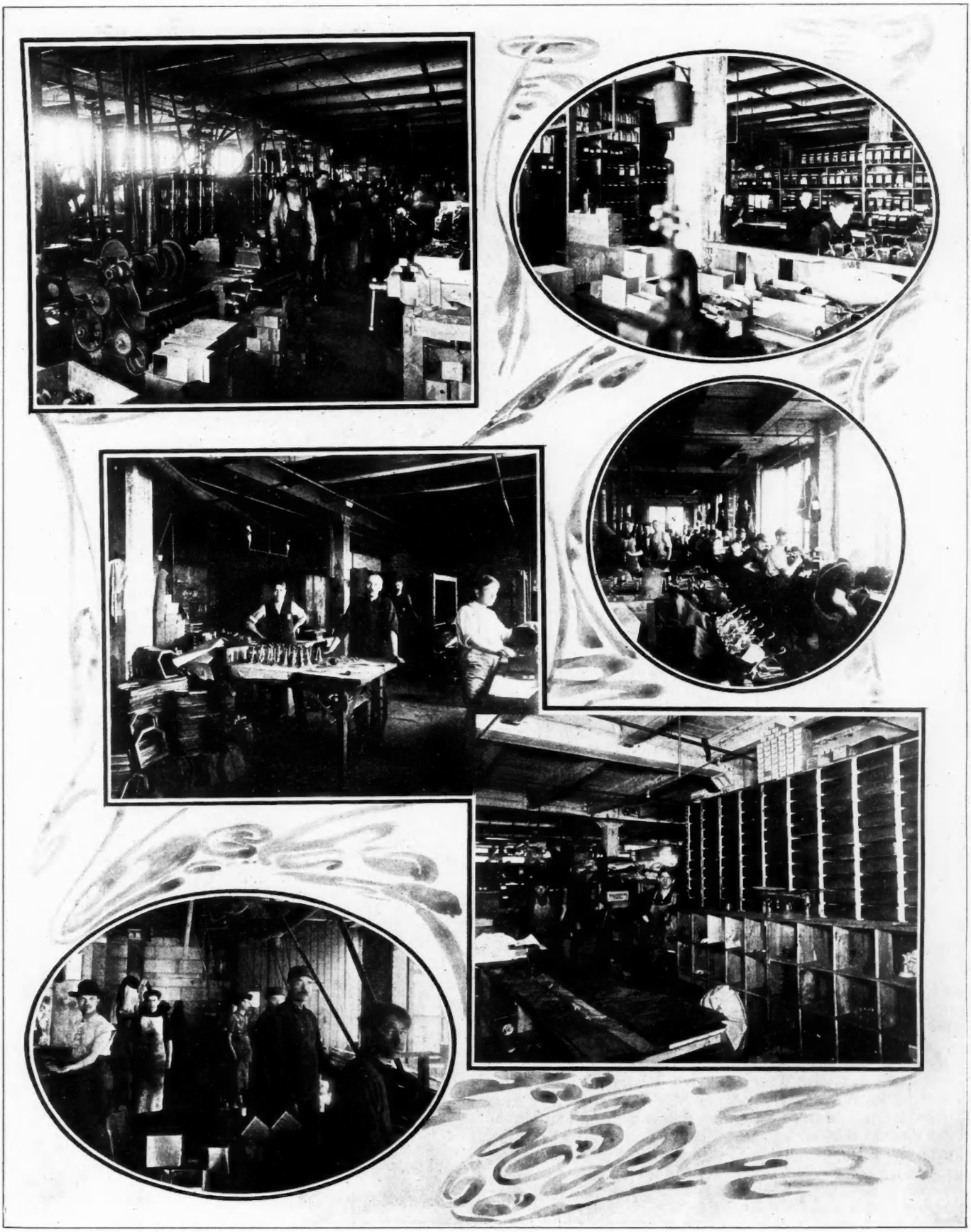
President's Private Office.

General Offices.

Machinists and Die Makers.

Experimental Room.

PRESIDENT OF BAIRD MANUFACTURING COMPANY AND VIEWS IN FACTORY.



Drill Presses and Operatives.
Transmitter Arm Department.
Grinding and Polishing Department.

Inspection and Shipping Room.
Assembling Benches.
Stock Room.

VIEWS IN FACTORY OF BAIRD MANUFACTURING COMPANY.

Electric Company, has had a wide experience in telephone engineering and manufacturing detail, and under his direction the factory and experimental room are models of efficiency.

F. C. Williams, general superintendent, is capable and successful in producing apparatus which is a credit to the company.

N. E. Norstrom, superintendent of the telephone department, is the inventor of the "secret service" telephone, and it is said of him that he stands without a rival in this, his favorite field.

H. von Obsfelder, who represented the company in connection with its exhibit at the recent National-Interstate telephone convention, is an enthusiastic salesman, who will personally call on exchange managers and demonstrate the merits of Baird apparatus.

It is quite apparent that the Baird Manufacturing Company, with its ever increasing line of successful specialties, is bound to exert a powerful influence in the development of the telephone industry of the future.

INSTALLING STOMBAUGH GUY ANCHORS.

W. N. Matthews & Brother of St. Louis, manufacturers of the Stombaugh Guy Anchor, have recently issued an illustrated card covering instructions for the installation of

NUMBER 1.

Stombaugh anchors. This device has become so familiar with pole-using companies that we reproduce herewith the card and illustrations:

Five and Six-Inch Without Rods—Attach a piece of galvanized strand or wire, seven or eight feet long, to eye of anchor, then pass wire through hollow pipe of wrench. Key the anchor firmly to wrench, draw wire tight and clamp it firmly, flush with cross of wrench (see illustration No. 1). If this is not done the wrench will slip off the key when in the ground. Now screw the anchor in at the angle that the guy wire is to run as far as ground conditions will permit. When installed at greatest depth possible, pull out wrench and attach guy wire to strand attached to anchor.

Five and Six-Inch With Rods—Key the anchor firmly to wrench. Drive a wooden or metal wedge into the eye to keep the wrench from slipping off the anchor (see illustration No. 2), and screw anchor in at the same angle as guy wire is to run as for as ground conditions will permit. When in as far as possible, pull out wrench and attach guy wire to eye of rod.

Eight, Ten and Twelve-Inch With Rods—Place bar or

NUMBER 2.

other lever in eye of anchor (see illustration No. 3), and screw it in as far as ground conditions will permit. Always at angle that guy wire is to run. When anchor is set, attach guy strand to eye.

Installing eight, ten and twelve-inch anchors in very hard

NUMBER 3.

ground, clamp a lever to the rod by means of a chain, a foot or so above the ground. As the anchor is screwed down the lever can be moved up.

In setting all Stombaugh guy anchors in hard ground

the work will be much easier if a hole is made with a crow or digging bar or a wood auger with a long shank. This makes the path of the anchor easier. A little water poured down this hole before starting the anchor will help considerably where the ground is hard and dry.

The anchor will start easier if a few spades of earth are removed at the angle desired to set the guy. If a man stands on the helix of the anchor when starting until the point bites the ground it will assist.

The greater the depth that Stombaugh guy anchors are installed, the greater the strain that they will hold. These

STOMBAUGH GUY ANCHORS.

anchors will hold a greater strain if a hole is scooped out so that the anchor can be bored in deeper.

Write us if you are unsuccessful in installing these anchors. Our experience generally enables us to suggest a way to overcome difficulties. Do not condemn them without giving us a chance to explain.

In localities where loose gravel or small float rock occurs, drill a hole with a digging bar or crowbar, as suggested above. If a small rock is encountered it can be broken by the bar. If a large rock is "discovered," the bar can be removed and the hole drilled in another place. This will allow the use of Stombaugh guy anchors in many places where it would seem impossible to install them.

CENTURY FACTORY TO BE ENLARGED.

The Consolidated Telephone Company of Buffalo, New York, which controls fifty exchanges in western New York and the long-distance system of the Inter-Ocean Telephone & Telegraph Company, and which recently purchased the Frontier Telephone Company of Buffalo, controls the Century Telephone Construction Company, manufacturers of "Century" switchboards, telephones and other apparatus. Owing to the constantly increasing demand for "Century" apparatus, extensive additions to the manufacturing plant of the Century company will be made at an early date.

"Century" apparatus is used exclusively in all exchanges controlled and operated by the Consolidated Telephone Company, and recent additions to the territory of the Consolidated company make the immediate enlargement of the factory facilities imperative.

The Century Telephone Construction Company recently has received orders for switchboards from the following companies: Livingston Rural Telephone Company, Dalton, N. Y.; Canisteo Telephone Company, Canisteo, N. Y.; Wellsville Telephone Company, Wellsville, N. Y.; The Burdette Telephone Company, Burdette, N. Y.; Cato Meridian Telephone Company, Cato, N. Y.; Port Byron Telephone Company, Port Byron, N. Y.

The Century Company's offices have been moved from Ellicott Square to 332 Ellicott street, which also is the home of the Frontier Telephone Company.

AWARDS IN C. C. C. PRIZE CONTEST

State of Ohio, } ss.
Harrison County, }

On this 19th day of June, A. D. 1905, before me, the subscriber, a notary public within and for the county and state aforesaid, personally came and appeared Jesse F. Smith, Leo R. Niccolls, and Charles C. Cadden, all of Cadiz, Harrison county, Ohio, being by me first duly sworn, on their several oaths depose and say as follows:

We have complied with each and every requirement and detail of the C. C. C. Prize Contest, advertised and set forth on page 533 of TELEPHONY, printed at Chicago, June, 1905, and have awarded the prizes to the following named persons, who have complied with all the conditions and requirements of the said contest minutely and in detail, to-wit:

John W. Stone, Sheridan, Indiana, first prize.
Ray H. Perry, McComb, Illinois, second prize.
J. A. Lowden, Harvey, Iowa, R. F. D. No. 1, third prize.
W. V. Holmes, Princeville, Illinois, fourth prize.
H. E. Merrick, Elgin, Illinois, fifth prize.
And further affiants say not.

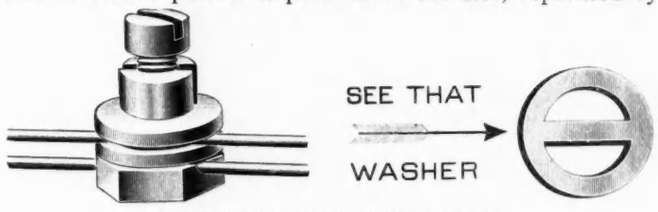
JESSE F. SMITH,
LEO R. NICCOLLS,
CHAS. C. CADDEN,

Sworn to before me and subscribed to in my presence by the said Jesse F. Smith, Leo R. Niccolls, and Charles C. Cadden, this 19th day of June, A. D. 1905, and I certify that I am not related to them or either of them and have no interest in this matter.

WILLIAM T. PERRY,
Notary Public.

NEW YORK WIRE CONNECTORS.

The New York wire connector for making electrical connections of telephone wires, etc., which may be readily disconnected for test, is manufactured by the Yonkers Specialty Company of Yonkers, New York. It consists of a brass stud with internally threaded shank, which is slotted to receive the wires. The main line wire is placed at the bottom of the slot and secured by a washer. The branch wires are next placed in position in the slot, separated by



NEW YORK WIRE CONNECTORS.

washers and held firmly by a screw. Attention is called to the form of the washer, which insures ample bearing surfaces and a firm pressure on the wires, resulting in a fine electrical contact. The branch wires are not bent, but lie straight in the slot. They may be easily disconnected for test by loosening the screw. On account of their small size these connectors can be readily taped, if desired.

The cut shows No. 1 connector, actual size. This connector is designed to connect branch wires of any gauge to main line wires No. 10 to 13 B. & S. gauge. Connector No. 2 connects 14 B. & S. gauge and smaller wires to branch wires of any gauge. Further information, prices and samples will be sent upon request.

AMERICAN ELECTRIC TELEPHONE COMPANY'S NEW FACTORY.

According to an announcement, which appeared in the December issue of the leading electrical journals and Chicago periodicals, the American Electric Telephone Company is now "at home" in its new manufacturing establishment, located on State street and facing Sixty-fourth and Sixty-fifth streets. For the past ten years this company has been located in the vicinity of Canal street and Jackson boulevard, during the last six years of which time the American building, situated on the southwest corner of Canal street and Jackson boulevard, has served as a base of operations. But this building—an eight story structure—not providing sufficient space for the company's constantly increasing business, it became necessary to lease a number of additional buildings in that vicinity.

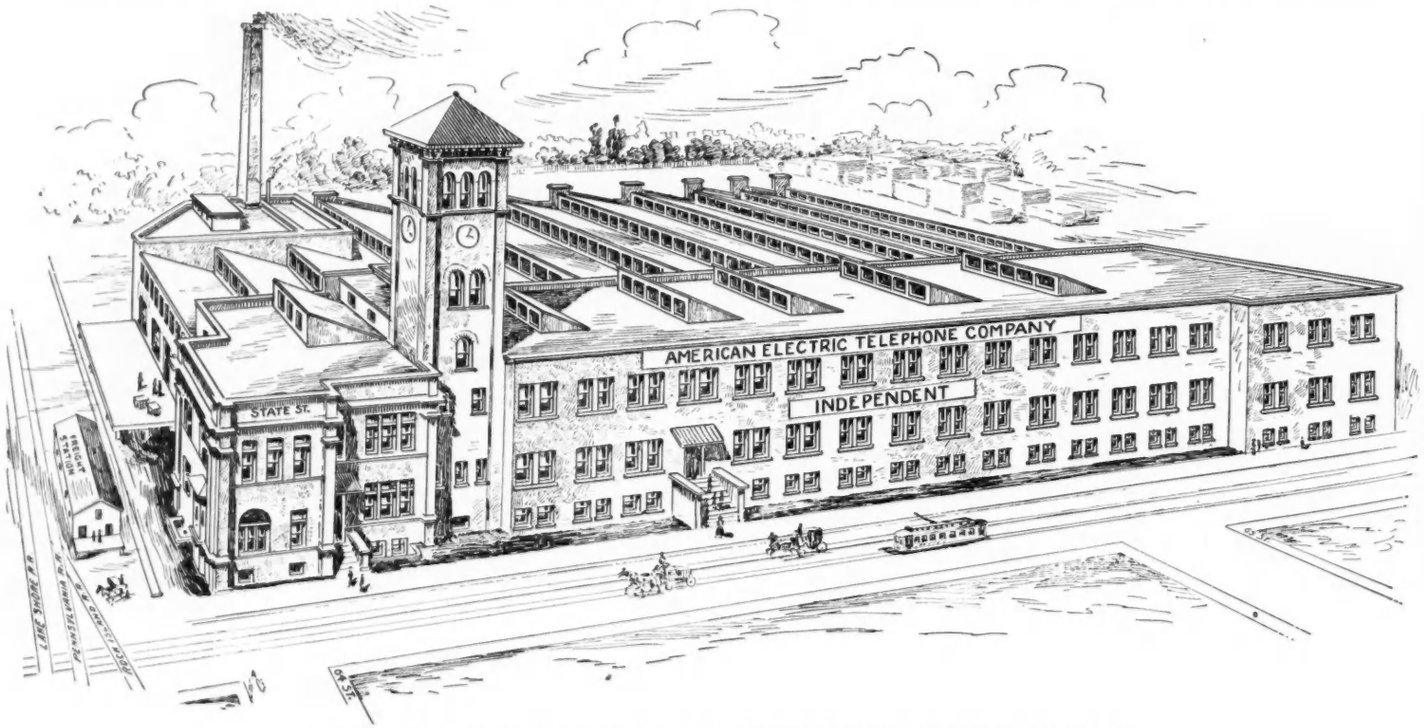
About six months ago, however, the company arranged for the purchase of a twelve-acre tract of land lying just south of the Pennsylvania, Lake Shore & Rock Island railroad tracks, and thereupon laid the foundation for one of the finest factory buildings in the city of Chicago. In order to take advantage of the great economy to be secured in a factory building with only two floors above the street level, it was decided to construct a part of the building as a single story, saw-toothed roof structure, while the office and the assembling department are located in a two-story and basement structure, facing the street. Upon referring to the cut accompanying this description, it will be observed that an excellent view of the building is presented.

In a general way, the construction is of what is ordinarily known as the "brick and steel" type, all roof projections and supporting columns being of steel. The face of the building is elaborately finished off with chocolate colored vitrified brick obtained from Toronto, Ohio, while certain corner projections and cornice work are tastefully modeled in glazed brick. The structure, which fronts on State street facing the west, is of the two-story and basement type. The ceilings in the basement are fourteen feet high, and in order to secure as much light as possible, an area way is provided, by which means light is admitted through full length windows.

The first floor has a space of sixteen feet between the floor and the ceiling, while the second floor has a fourteen foot ceiling with skylights above the entire building.

The general offices are located on the first floor nearest to the observer, while viewing the building, as shown in the cut. Immediately above the second floor are the engineering and drafting departments, and directly over this are placed the blue printing and photographic departments.

In general, the different departments throughout the building may be sub-divided as follows: The basement under the two-story structure contains the cabinet-makers' shop and carbon making plant. The first floor contains the testing and assembling departments, while in the central portion of the building, where the time-keepers are stationed, is the employes' entrance to the factory. The second story, in addition to the engineering department, contains the switchboard, winding and general experimental departments, including the laboratory and chemists' quarters.



NEW FACTORY OF THE AMERICAN ELECTRIC TELEPHONE COMPANY, CHICAGO.

In the rear portions of the building on the street level the general machine apartments, as well as the tool room, buffing, nickel-plating and condenser departments, are located. Here also is the wire insulating machinery and a part of the assembling apparatus.

The power house, it will be observed, is located immediately to the left in the cut. The coal bin is built next to the spur of the railroad and adjoining the boiler room, which in turn adjoins the engine room. Between the power house and the two story portion of the building are located the general stock rooms and packing and shipping departments, the basement being utilized for general stock such as wire, cables, etc.

In addition to the immense floor space of this new building, aggregating over 100,000 square feet, the yard facilities are very extensive.

As to the general equipment of the building, the power plant consists of two 150-h.p. boilers, made and installed by the Murray Iron Works of Burlington, Iowa, which

furnish steam for two 150-h.p. Corliss engines. These engines are then each belted to the 125-k.w. Bullock Electric Manufacturing Company 220-volt generators furnished by the Allis-Chalmers Company.

The transmission system adopted by the American company for this new factory consists of a large number of electric motors, being distributed throughout the factory close to where the power must be delivered to the machinery. A ten-h.p. unit has been adopted for general service, though several larger machines are installed, among others being a fifty-h.p. equipment, which drives the machinery needed for the nickel-plating and buffing departments.

The motors are of the General Electric type, 220 volts, each machine being equipped with circuit breaker and starting boxes, located on a marble slab, which is placed close to the machine which the equipment is required to control, the current being fed to these starting panels from a marble feeder panel located in the engine room. In addition to using the 220-volt motors for general service, the winding department is supplied with approximately one hundred 110-volt winding motors. The current for these motors is delivered from the same wires which supply the building with light.

It is in the matter of supplying lighting current that the American company has adapted a peculiar system of distribution. Briefly, the main generators are of the 220-volt type and supply current to the feeder panels. The machines may be connected in parallel for combined operation. The 220-volt leads are then led to a center of distributions for the lighting system, at which point a large distributing panel is installed, together with a compensator, which is so connected to the three wires of the lighting system and the two wires of the 220-volt machine that any unbalancing effect which might be produced through using a larger amount of current on one side of the system and then on the other side, is taken care of by this equalizer. For night service, and during the hours that the engines are not in operation, the electric light distributing panel is so provided with switches that the three-wire system may be thrown over on the three-wire Edison supply circuit, and thus furnish the necessary auxiliary supply of current.

Communication between the basement and first and second floors is had by the provision of a large Reedy elevator, which is operated by an electric motor.

The shipping facilities are of the best character, a side track having been run direct to a platform immediately outside of the shipping rooms. In addition to the siding, a Pennsylvania freight station is located within 150 feet of the building. The side track permits of loading freight for any of the many roads passing the factory, including the Rock Island, Lake Shore, Pennsylvania, Pan Handle, Erie, Nickel Plate, Pere Marquette, Wabash and C. & E. I.

The problem which confronted the American company in moving from its old quarters to the new was one of enormous proportions, it requiring the services of 100 men and twenty-five trucks for a period of three weeks to transport the stock and machinery.

The factory is located within a stone's throw of the Union depot at Englewood station, through which most of the trunk lines entering Chicago pass, all through trains stopping at this station.

The American Electric Telephone Company was founded in 1893 by P. C. Burns, its first factory being located at Kokomo, Indiana. Removing to Chicago in 1897 its business continued to grow, and in 1898 it purchased the Keystone Telephone Company of Pittsburg, the Northwestern Telephone Manufacturing Company of Milwaukee and the Washington Electric Company of Chicago. In this year J. G. Ihmsen, formerly manager of the Keystone Telephone Company, became general manager of the combined factories. Through the united efforts of its president, P. C. Burns, its general manager, J. G. Ihmsen, and a competent engineering corps headed by H. P. Clausen, the company continued to prosper, and in May, 1900, the entire plant was purchased by a syndicate that had formed a new corporation under the laws of New Jersey. In addition to the purchase of the American company it also bought the Victor Telephone Manufacturing Company, which, added to the previously large possession of the American company, constituted one of the largest telephone and electrical manufacturing plants in the United States. The new company immediately found it necessary to increase its output and has continued to do so from year to year until its quarters at the old location became entirely inadequate for its business.

Mr. Burns was made president, J. P. Lyman, treasurer, and J. G. Ihmsen, secretary of the new corporation, under whose capable management the business is now conducted.

T. & A. SELECTIVE CALL TELEPHONE APPARATUS.

The T. & A. Selective Call Company of Geneseo, Illinois, has just closed one of the best months in its history. Its apparatus was introduced during the month into five new states, which had not hitherto appreciated the merits of this very successful apparatus. On another page of this issue will be found an advertisement of the T. & A. Company containing a reproduction of one out of many warmly commendatory letters which it is constantly receiving. The great advantage to be derived from this attachment on rural lines will be readily seen when one takes into consideration the fact that it:

(1) Enables subscribers to call each other without disturbing central.

(2) Enables subscribers to instantly call either central, where there are two centrals, without disturbing the other central or other subscribers.

(3) Can be used on grounded lines, metallic or divided circuit.

(4) Does not require new telephones, and can be readily attached to the instruments already in use.

There are various other attractive and useful features about this selective call device, information regarding which can be had by writing to the manufacturer, the T. & A. Selective Call Company, Geneseo.

STROMBERG-CARLSON RECENT SWITCHBOARD SALES.

The Stromberg-Carlson Telephone Manufacturing Company of Rochester, New York, reports having recently closed contracts for switchboards for the following places: Waverly, O.; Seattle, Wash.; Kansas City, Mo.; Scenery Hill, Pa.; Benzonia, Mich.; Albany, N. Y.; Rock City, Ill.; Maynard, Ky.; Walker, Minn.; Susquehanna, Pa.; Coalville, Utah; Mt. Vernon, Ind.; Hayden, Ind.; Verlardena, Mexico; American Fork, Utah; Lyons, N. Y.; Columbus, O.; Atlantic, Ia.; Ishpeming, Mich.; Scotts Hill, Tenn.; Chinook, Mont.; Paris, Tenn.; Toronto, Ont.; Maquoketa, Ia.; Wray, Colo.; Lowry, Minn.; San Antonio, Tex.; Guymon, Okla.; Rochester, N. Y.; Park City, Utah; Quimby, O.; Rice Lake, Wis.; Roosevelt, Ariz.; Essex, Ia.; Breeds, Ill.; Linn Grove, Ia.; Buffalo Hart, Ill.; Baldwin, Wis.; Mt. Branch, Tenn.; Berwick, Pa.; Fulton, Kan.; Fenton, Ia.; Bowbells, N. D.; Folsomdale, Ky.; East Smithfield, Pa.; Elizabeth, N. C.; Washington, N. C.; Granville, N. D.; Pontiac, Ill.; Macon, Ill.; Chicago, Ill.; Fulton, Ia.; McLain, Kan.; Oregon, Ill.; High Point, N. C.; Kampsville, Ill.; Cowden, Ill.; Plainville, N. Y.; Stanley, N. Y.; Mexico City, Mexico; Adrian, Mich.; Furley, Kan.; Elbing, Kan.

Trade Notes

THE SWEDISH-AMERICAN TELEPHONE COMPANY, Chicago, recently received an order for 500 telephones and switchboard equipment from the Venezuelan Asphaltum Mining Company.

A NEW enterprise will be launched in Gallatin, Tennessee, in the near future for the manufacture of telephone, telegraph and electric light insulator pin and brackets. The capacity of the plant will be from 5,000 to 10,000 per day.

G. M. GEST, the expert subway contractor of New York and Cincinnati, has been awarded the contract to construct a complete underground conduit system for the Consolidated Electric Light Company of Maine, at Portland, Maine.

THE OSHKOSH LOGGING TOOL COMPANY, Oshkosh, Wisconsin, which manufactures the well-known "Oelteco" construction tools, recently has issued a circular bearing on the merits of its products, which will be sent upon request.

ESTIMATE blanks for telephone exchanges have often been printed, but the one now issued by the F. Bissell Company of Toledo, Ohio, is said to be very complete. It covers four pages, each of two columns, and may be had free for the asking.

THE MCROY CLAY WORKS, Brazil, Indiana, continues to distribute each month to its customers and the trade in general, neat blotters advertising "McRoy Conduits." It invites all telephone men to send in their names and be placed on its free blotter list.

THE WESTERN TELEPHONE MANUFACTURING COMPANY, Chicago, is issuing a photograph of President Roosevelt and his family, which will be mailed free on request. The photograph is a recent one and is an excellent likeness of our chief executive and his family.

THE CONNECTICUT TELEPHONE & ELECTRIC COMPANY of Meriden, Connecticut, lately shipped to the Island of Guam 100 telephones and the necessary switchboard equipment, for the United States government, to be used in connecting the various forts and the interior army posts.

CHARLES F. BELMAN of New Albany, Indiana, has patented a device to displace the familiar glass insulators on the crossarms of telephone and telegraph poles. The device is of iron and the wire is held by a clutch which prevents its slipping. The contrivance rests in a socket in the crossarm.

THE NORTH ELECTRIC COMPANY, Cleveland, Ohio, will be pleased to send upon application a new bulletin which it has published, entitled "The Voice of Progress." This bulletin voices an appreciation of the rural telephone detailing the advantages which it has brought to farming communities.

THE WHITE CITY ELECTRIC COMPANY, Chicago, is enjoying a prosperous trade in telephones and telephone supplies. In addition to handling a full line of apparatus, they are contractors and will install complete systems for either exchange or interior work. They also are experts in repair work of all kinds and are sole Chicago agents for the celebrated Browning motors and generators. Write for circular matter.

FRANK B. COOK, Chicago, manufacturer of protector apparatus, is nothing if not versatile as an inventor. Recently he secured a patent on a door-hanger, which he disposed of to the Allith Manufacturing Company, Chicago, for $5,000. He will also receive a royalty on each door-hanger manufactured.

THE AMERICAN ELECTRIC FUSE COMPANY, Chicago, is rapidly getting settled in its new factory at Muskegon, Michigan. It is something of a problem to move an immense plant of this kind and at the same time keep up with orders. This the company is doing, however, and shipping promptly from all its stores.

THE GENERAL STORAGE BATTERY COMPANY, New York city, has issued Catalogue A, descriptive of "Bijur" storage batteries of the "high-duty" type for stationary service. This catalogue is finely illustrated, and the text is sufficient to give a very good understanding of the electrical and mechanical features of the apparatus.

THE AUTOMATIC ELECTRIC COMPANY, Chicago, has just sold a 15,000-line automatic telephone system to the Cuban Telephone and Telegraph Company of Havana, Cuba, and to the same company a 600-line automatic plant for Marianao, Cuba. The immediate installation at Havana will be for 5,000 lines, and at Marianao 100 lines.

THE AMERICAN CONDUIT COMPANY, Chicago, has been obliged to improve and increase its manufacturing facilities to meet the growing demand for its bituminized fiber conduit. These improvements and extensions have just been completed and the company is now in shape to make unusually prompt deliveries, even on large orders.

THE NATIONAL BATTERY COMPANY, Buffalo, New York, will send to anyone upon request its Bulletin No. 1, which illustrates and describes the installation of its storage batteries—"with accumulators"— in the exchange of the Frontier Telephone Company of Buffalo, a central energy system. The bulletin is sure to interest any telephone man.

A CERTIFICATE of incorporation has been filed at Dover, Delaware, for the Gault Drum Telephone Company of Pittsburg. Capital stock, $100,000. Incorporators, C. D. John and H. P. Rawley, Pittsburg; H. B. Mosser, Aspinwall, Pennsylvania. The purpose of the company is to manufacture, sell and deal in the Gault telephone ear drum.

J. H. BUNNELL & COMPANY, Incorporated, New York city, have brought out their catalogue for 1905-1906. This is the twenty-fifth edition, and describes telegraph instruments and appliances, telephone apparatus and fittings, fire-alarm equipment, bells, batteries and general electric supplies. The catalogue is bound in cloth, and has about 400 pages, profusely illustrated.

THE WILLIAM MUELLER COMPANY, Chicago, states that the cedar pole business is picking up wonderfully and that there is an unusual demand for short poles. The Mueller company has eight distributing yards and is well prepared for a large business. With its exceptional facilities for promptly filling orders, it expects to obtain its full share of business during the present season.

ARMOUR INSTITUTE OF TECHNOLOGY, Chicago, held its ninth annual commencement on June 15. The annual college address was delivered by Dr. Charles S. Howe, president of Case School of Applied Science. The new Year

Book of the institute has also been issued, containing 195 pages. One of the important courses outlined is telephone engineering, taught by Dr. George Walker Wilder.

THE LOCKE INSULATOR MANUFACTURING COMPANY, Victor, New York, has broken ground for a two-story addition to its plant, which will have an area of 50 by 150 feet. The company is also erecting two large porcelain kilns, in addition to its present equipment. Enlargements such as these have been made annually practically since the erection of the pottery, and they are becoming more extensive every year.

THE MARION INSULATED WIRE AND RUBBER COMPANY, Marion, Indiana, has just issued a catalogue, which is chiefly of interest in describing insulated wire of all description. The bulk of the catalogue is devoted to a description of various kinds of electric light leads and cables. In addition the company manufactures all sorts of insulating tapes and single and twisted pair telephone wires. The company will send the booklet to anyone requesting it.

THE EWING-MERKLE ELECTRIC COMPANY, St. Louis, issues monthly an attractive little publication called The Everbest Magazine, and which contains much of interest, technical and otherwise. The publishers say: "Everbest will be sent free occasionally to those whom we think will appreciate its merits. To those who are interested in securing every issue postpaid and will remit us 25 cents, Everbest will be mailed for twelve months and perhaps longer."

THE EWING-MERKLE ELECTRIC COMPANY, St. Louis, is distributing publication No. 25, entitled, "A Guide to Telephone Promotion and Organization." The book tells the advantages of the telephone on the farm, and gives estimates of the cost. Directions for organizing a farmers' mutual telephone company, together with a model constitution and by-laws, are given. Directions for erecting and operating the lines comprise a large part of the book. It will be sent upon request.

THE STANDARD VITRIFIED CONDUIT COMPANY, New York city, states that it is supplying a large portion of the Bell telephone interests, the tunnels under the North and East rivers, New York, the underground rapid transit system of New York, the New York Central and Pennsylvania improvements, the Philadelphia Electric Company, the city of Baltimore, Norfolk, Virginia, and the forts of New York harbor with orders of vitrified conduit aggregating upward of 10,000,000 feet.

THE NATIONAL CONDUIT AND CABLE COMPANY, New York city, in "Copper Gossip" for June, discusses the business outlook and the copper market situation. Conditions are stated to be favorable, and the copper market is firmer and more active. The exports for the first five months break all records. The pamphlet also gives a comparison of the price of copper at London and New York for the past six weeks, the exports and imports of copper for the first part of 1905, and European copper statistics.

THE WESTERN TELEPHONE MANUFACTURING COMPANY, Chicago, has issued Catalogue D descriptive of the magneto systems which it manufactures. It is nicely illustrated. By way of introduction it says: "The Western Telephone Manufacturing Company is the pioneer Independent telephone factory. We *ought* to know how to make telephones and we do. There are thousands of Western telephones still giving satisfaction to-day, which have been in actual, steady use for more years than most telephone factories have been in business. We make only one grade of telephones—the best that money can buy and skilled mechanics can produce. We aim to keep the customers we get." Catalogue D may be had upon application.

OKI & COMPANY, an electrical supply house of Japan, have favored TELEPHONY with their monthly report, which although printed in the Japanese language is illustrated a la American and is very interesting. The apparatus of the American Electric Telephone Company of Chicago is handled by Oki & Company, also the product of the Chicago Fuse Wire and Manufacturing Company, L. B. Allen (soldering salt, paste and sticks), National Carbon Company, and Safety Insulated Wire and Cable Company.

THE Kaisling protector, manufactured by the American Electric Fuse Company, Chicago, is, the company claims, meeting with more than its share of success. The company further states that the most eminent engineers of the country have heartily endorsed it, and its adoption by the leading manufacturers of telephone apparatus and exchange owners puts it at the head of all protector devices. A new catalogue explaining in detail all about Kaisling protectors will be sent to anyone making a request for same.

"THE OPINION OF AN EXPERT" is the title of a neat little pamphlet which is being generously distributed by the American Electric Fuse Company of Chicago. The document embodies a report by James C. Kelsey, formerly professor of telephony and electrical engineering at Purdue University, and relates to successful tests made at the university with Kaisling protectors. The opinion of Mr. Kelsey, as may be inferred, is highly flattering to the Kaisling apparatus. A copy of this pamphlet may be had for the asking.

THE HOLTZER-CABOT ELECTRIC COMPANY, Boston (Brookline), Massachusetts, has issued Bulletin No. 200, bearing upon the subject of magneto signaling apparatus. There is a profusion of half-tone illustrations, accompanied by detailed descriptions of the Holtzer-Cabot product. A list of the company's other bulletins and booklets also is given, and altogether it is a desirable little document for the operating manager or any other person interested in telephone works. Bulletin No. 200 will be sent upon application.

THE STANDARD TELEPHONE AND ELECTRIC COMPANY, Milwaukee, Wisconsin, has just shipped to Waterloo, Wisconsin, a new 200-line section switchboard equipped with loose sleeve plugs and also its rubber insulated drop core. The board, in neatness and workmanship, is the best that the Standard Telephone Company has ever turned out. At the present time the company is working on a 300-line board for Kahoka, Missouri, and a small private branch exchange board for Sheboygan, Wisconsin. It is rushed as never before with telephone orders.

THE MOON MANUFACTURING COMPANY, Chicago, states that orders for the Moon combination terminal head and junction box indicate that this manner of forming the splice inside of the terminal head is being generally adopted for "tapping out" wires in all cable plants; also orders for many junction boxes, to be used in underground cable construction, show the confidence the exchanges place in this apparatus, and in the reliability of the cable joint formed with the Moon self-soldering nozzle, and the hermetically sealed iron box, further protected by cable compound.

THE NATIONAL WIRE CORPORATION, New York city, is mailing to the trade an illustrated circular relating to telephone and telegraph wire, which contains in condensed form a description of its high grade double galvanized wire and wire strand. There is also given a table of weights

and resistances, which is not usual in such a circular, but is of great value to electrical engineers. The circular also gives the strength of the various high grades of strand that the National Wire corporation makes and will be found useful by any telephone company, either in the purchasing or engineering department. A copy of this circular will be furnished to anyone asking for the same.

THE MODEL ELECTRIC COMPANY, Burlington, Iowa, reports that it is daily receiving inquiries regarding its four-party selective telephone system. Its sales on this instrument during the month of July promise to exceed the total sales for the last three months. The Mississippi Valley Telephone Company of Iowa is using the Model's selective telephone exclusively in its exchanges at Burlington, Wapello, Muscatine, Ft. Madison and Keokuk. The company also reports a heavy demand for its No. 19 5-bar bridging telephone from the states of Iowa, Illinois and Missouri. A sample will be shipped on approval, freight prepaid. The officers of the Model company are D. J. J. Little, president and treasurer; L. R. Shervill, secretary and manager.

THE CENTRAL ELECTRIC COMPANY, Chicago, reports that the large increase in the sales of "Okonite' and "Manson" tapes indicates a growing demand for these high-grade tapes. The company emphasizes the fact that these tapes are made only in one quality, the best, and that in order to make a perfect insulation all wire joints should be taped first with "Okonite," rubber tape and second with "Manson" friction tape. "Okonite" tape is thoroughly waterproof and a perfect insulating medium. It is not injured by exposure to weather, does not deteriorate when submitted to extreme changes in temperature, and is not affected by commercial acids or alkalies. The company also reports a steadily increasing demand for Condee potheads. This pothead is guaranteed water and moisture proof, and prevents the destructive attacks of water and moisture upon paper cables; it does not crack, swell or shrink from temperature changes, but maintains its efficiency under all conditions of weather.

BAIRD COMPANY'S LOCK-OUT TELEPHONE A GREAT SUCCESS.

The Baird Manufacturing Company, 24 Michigan street, Chicago, manufacturer of the well-known Baird pay-stations, reports that its lock-out telephone and pay-station business has grown so rapidly in the past few months that it has been necessary to greatly increase its factory space.

That the Baird company's lock-out telephone is a great success is demonstrated by the fact that it has been receiving many repeat orders for additional equipment from users of its system, some of which are: Home Telephone Company, Plattsburg, Ohio; Central State Telephone Company, Oberlin, Kansas; Forreston Mutual Telephone Company, Forreston, Illinois; Carlinville Telephone Company, Carlinville, Illinois; Lincoln Telephone Company, Lincoln, Nebraska; Grayson County Telephone Company, Sherman, Texas; Home Telephone Company, La Crosse, Wisconsin.

It has increased telephone rates for all of them, as the subscriber willingly pays higher rental for such service as the Baird system supplies. It is claimed that not one of the many companies which has given the Baird company a trial order has let it stop at that. They have added to their equipment as fast as they could get the subscribers, in consequence of which the Baird company has been kept very busy. There is no time like the present to look into this system, and it will well pay any telephone company operating rural or party lines to write the company regarding its liberal trial offer.

The company's liberal trial offer evidences the great faith it has in its system, and it will well pay telephone companies operating rural and party lines to investigate this system.

The Baird company's booklet entitled "Secret Service on Party Lines," which gives much valuable information regarding this system, will be sent free upon request.

INDEPENDENT TELEPHONES IN MEXICO.

Practically all of the telephone work in Mexico in the past has been controlled by the Mexican Telephone Company, a branch of the American Bell Company. To open up rural systems and Independent city exchanges, the International Telephone Manufacturing Company of Chicago has made arrangements with the Mexican General Supply Company to make telephone work one of its main lines, and has recently made a number of shipments of complete exchange equipments.

The Mexican General Supply Company has among its members some of the most prominent business people in Mexico. Its president, Othon Sartorius, is one of the leading bankers in Chihuahua. The vice-president, Dr. William White, is one of the most prominent physicians in that section. E. S. Buchoz, secretary, is widely known in the financial world throughout Mexico. The treasurer and general manager, F. H. Williams, is a practical electrical engineer, and previous to his going to Mexico, in 1893, was in the electrical contracting business, with headquarters in Chicago.

The company is installing Independent public exchanges throughout the republic of Mexico, and also is maintaining electrical, mining and telephone supply houses in the principal cities.

NEW ASSOCIATION FORMED IN ILLINOIS.

The Independent telephone companies throughout the section around Kewanee, Illinois, have organized an Independent telephone association, taking in the following counties: Henry, Bureau, Stark, Knox, Mercer, Warren, Rock Island, Peoria, Marshall and Henderson. A meeting was recently held at which a preliminary organization was effected. F. M. Ashe of Kewanee was made temporary chairman of the organization, and W. S. McQuiston of Monmouth was made temporary secretary. A committee consisting of Messrs. Daily of Chillicothe, Chase of Galesburg, and McQuiston of Monmouth was appointed to arrange a schedule of tolls.

CUYAHOGA'S STREET TELEPHONES ROBBED.

When the Cuyahoga Telephone Company, of Cleveland, installed its outdoor public telephone service in different parts of the city many precautions were taken to prevent the stealing of messages. The girl who confidentially said, "Nickel, please," every time the light flashed before her gaze, was instructed to be especially careful in hearing the tinkle of the coin before she let the message go through.

No great precautions were taken, however, against having the whole outfit, heavy iron box and all, "annexed." This is just what happened. Now the officials of the company are wondering if they can install a wireless thief-proof outdoor telephone service. On a recent Saturday night two of the company's street pay-stations were "cracked." The small amount of money in the two boxes not only was taken, but the large cast iron boxes containing the pay-station and telephone apparatus, as well as the apparatus itself, were maliciously destroyed. The telephone company will hereafter remove the cash from its street pay-station boxes each evening.

Personal

A. E. Cheney has applied for a telephone franchise at Reno, Nevada.

M. A. George has been granted a telephone franchise at Bishop, California.

L. L. McCoy has applied for a telephone franchise at Red Bluff, California.

L. W. Keyes has applied for a telephone franchise at Hammond, Wisconsin.

Dr. W. T. Crawford is organizing a telephone company at Fowler, California.

E. M. Sheffield contemplates organizing a telephone company at Belmont, Iowa.

W. J. Dwyer is seeking a franchise for a telephone exchange at Medina, North Dakota.

H. R. Strother is completing a fine new telephone plant at Centralia, Indian Territory.

George B. Hannah has been awarded a telephone franchise at San Jacinto, California.

J. R. Eddy has purchased the Home Telephone Company's exchange at Eldon, Iowa.

J. R. Wheatley has purchased the telephone line extending from Isabel to Sawyer, Kansas.

O. P. Pritchard has accepted a situation as manager of the Flora (Ind.) Telephone Company.

F. H. Wheeler has been appointed manager of the Grand Island (Neb.) Telephone Company.

C. L. Hale of Dansville, Michigan, has sold his telephone exchange to W. W. Raymond.

C. R. V. Blom is interested in the promotion of a local telephone company at Milan, Minnesota.

G. Woodgate of Slayton, Minnesota, will install a local telephone system at Currie, the same state.

C. A. Loomis is soliciting for the Farmers' Mutual Telephone Company at Blaine, Washington.

O. P. Pritchard has been appointed manager of the Flora (Ind.) Independent Telephone Company.

C. H. Snell is interested in the promotion of a telephone system in Canton, New York, and vicinity.

James Chambless of Strong City, Kansas, has purchased the Saffordville (Kan.) telephone exchange.

W. P. Hopkins has been appointed secretary and manager of the telephone exchange at Clarksville, Texas.

William Line has been appointed manager of the People's Telephone Company at Morgantown, West Virginia.

A. J. Curran of Delaware, Ohio, has been appointed manager of the Elyria (Ohio) Home Telephone Company.

Frank Jones of Decatur (Ala.) has been appointed manager of the Morgan County Telephone Company, New Decatur.

W. F. Howard has been appointed manager of the telephone exchange at Newport, Arkansas, to succeed C. S. Mulherron.

J. R. Johnson has sold the Carter-Johnson telephone line to R. V. Montague, proprietor of the exchange at Mexico, Mo.

August E. Johnson has been granted a franchise to erect and connect a local telephone system at Washburn, North Dakota.

George W. Cross is the new local manager for the Inter-Ocean Telephone and Telegraph Company, at Dansville, New York.

George D. Lint of Goshen, Indiana, chief organizer of the Home Telephone Company, died May 4. He was a prominent attorney.

J. T. Butler is now sole owner of the telephone exchange at West Branch, Iowa, having purchased the interest of William Douglass.

E. C. Kast is seeking a franchise at Litchfield, Minnesota, on behalf of the Twin City Telephone Company, for a local exchange.

Oscar Overholtzer has been awarded the contract for the installation of a municipal fire alarm system at Pomona, California.

E. H. Sidwell of Estherville, Iowa, has been employed by the Midland Telephone Company to promote some new lines near Lake Park.

F. B. McElroy of Dallas, Texas, has been granted a twenty-four year franchise to establish a telephone system at Shawnee, Oklahoma.

W. A. Medsker of Cambridge City, Indiana, representing the Milton (Ind.) Co-operative Telephone Company, has procured a charter for the company, under which it will be fully organized for business.

W. H. Walling and others of Decker, Montana, have under consideration the construction of a telephone line to Sheridan, Wyoming.

H. G. Slater, owner of the Waupaca (Wis.) Citizens' Telephone Company, is to spend $2,000 in putting the exchange in first-class condition.

J. T. Knode of Corry, Pennsylvania, manager of the Union Telephone Company, is interested in the construction of a telephone line to Riceville.

Charles Gord, assistant manager of the Star Telephone Company of Ashland, Ohio, was married on June 6 to Miss Eva Davis of Lodi, Ohio.

George R. Fry, George W. Myers and A. H. Calaman of Bloserville, Pennsylvania, have applied for a charter for the Bloserville Telephone Company.

J. T. Hassell, manager of the Billings (Texas) Telephone Company, states the company contemplates building a line from Smiley to Elm City, Texas.

George L. Banks has resigned his position with the Saybrook (Ill.) Telephone Company and has accepted one with the Heyworth Telephone Company.

Dr. L. Brehant, manager of the Forest Telegraph and Telephone Company, has decided to extend his line from West Pembroke to Lubec, Maine.

R. G. McCoy has succeeded O. Morsman as general superintendent of the Independent Consolidated Telephone Company of Richland Center, Wisconsin.

P. A. Huston, E. Hustin and E. M. Barnes have been granted a franchise to erect poles and string lines for a private telephone line at Hamilton, Iowa.

W. M. Daniels of Lonoke, Arkansas, has invented a telephone which he claims is superior to the telephones now in use, both in construction and service.

J. C. Jones of Norman, Oklahoma, has purchased the telephone exchange at Broken Arrow, Indian Territory. Frank McGuire will have charge of the system.

James Fagan, for four and one-half years manager of the Herkimer County (N. Y.) Telephone Company, has severed his connection with the company.

J. W. Scott of Grand Forks, North Dakota, has secured a controlling interest in the Benson County Telephone Company at Minnewaukon, North Dakota.

D. N. Tallman recently was elected president and treasurer, and John Williams secretary of the Minnesota Central Telephone Company at Willmar, Minnesota.

James Brooks of Sherman City, Kansas, has applied to the board of county commissioners and the city council of Oswego, Kansas, for a telephone franchise.

A. W. Larson of Wausaukee, Wis., is interested in the promotion of a telephone line from Athelstane eastward, connecting with the Amberg Telephone Company's lines.

Roy L. Fraser, secretary and general manager of the Eastern Kansas Telephone Company of Kincaid, Kansas, was joined in marriage on June 7 to Miss Nellie Scruggs.

J. A. Johnson of Owenton, Kentucky, has purchased all the rights and property of the Gallatin County telephone line from R. B. Brown & Company, the purchase price being $6,000.

W. W. Libhart, who for the past year has been manager of the local telephone exchange at Chicago Junction, has been promoted to the management of the Norwalk, Ohio, exchange.

Claude Eaton, in partnership with Fred Scoresdy, has bought the Sterling, Kansas, telephone exchange, and says they are preparing to put in a greatly improved service in that city.

George Woodworth has been elected president and F. A. Hazelbaker secretary of the Southern Montana Telephone Company, which is to build a line from Dillon to the Big Hole Basin.

V. A. Geiger of Cherubusco, Indiana, who owns several telephone lines in the county, is making arrangements to install a switchboard in Huntertown that will accommodate 200 or 300 telephones.

Otto Wettsetin, who recently purchased the Maquoketa (Iowa) Telephone Company, has been making arrangements for the reconstruction of its lines and the placing of a new switchboard.

E. L. Brown, who for several years was salesman for the Stromberg-Carlson Telephone Manufacturing Company, is now vice-president of the Titus company, 656-658 Broadway, New York city.

Messrs. W. E. Keeler and E. E. England, director and manager of the Mt. Pleasant (Ind.) Telephone Company, are interested in the promotion of a toll line between Burlington and Mt. Pleasant.

Christopher O'Brien and Francis Washington have asked the county court at Clayton, Missouri, for a franchise to construct a telephone line over the southern and western part of the county.

Incorporations of the Month

ARKANSAS.

MENA—The Mena and Smithville Telephone Company. Capital stock, $5,000. Incorporators, I. D. Jones, C. A. Smith, and G. L. Lockbridge.

MARVELL—The Marvell Telephone Company. Capital stock, $20,000. President, J. L. Turner; vice-president, M. J. Day; secretary-treasurer, H. C. Donire.

CALIFORNIA.

NAPA—The Brown's Valley Telephone Company. President, A. D. Butler; secretary, H. R. Borrette.

BIG PINE—The Big Pine, Lida and Tule Canyon Telephone & Transportation Company. Directors, J. M. Davis, Los Angeles; J. W. Tracy, Big Pine, and others.

SAN FRANCISCO—The Home Telephone Company. Capital stock, $10,000,000. Incorporators, Richard M. Hotaling, Henry T. Scott, J. S. Torrance, Vanderlynn Stow, Thomas W. Phillips, John T. Mahony, Mark L. Gerstle.

CANADA.

FREDERICTON—The Provincial Telephone Company. Capital stock, $9,000.

TORONTO, ONT.—The Ontario Telephone Company has been incorporated with a capital of $200,000.

MELITA, MAN.—The Melita Telephone Company. Incorporators, Duncan Day and G. Coulter, of Melita.

BURGESSVILLE, ONT.—The Burgessville Telephone Company. Capital stock, $40,000. The incorporators are M. Emigh, J. G. Corless, H. E. Service, H. Smeath, Burgessville; A. E. Wilson, E. F. Park, W. T. Nutt.

FLORIDA.

WEST PALM BEACH—The Interurban Telephone Company of West Palm Beach. Capital stock, $25,000. Incorporators, H. B. Yarborough and associates.

ILLINOIS.

ROBINSON—The Citizens' Mutual Telephone Company. Capital stock, $2,400. Incorporators, M. D. Mills, A. N. Link, W. S. Smith.

PANOLA—The Panola Farmers' Telephone Company. Capital stock, $1,500. Incorporators, Frank M. Taylor, V. M. Risser, J. H. Roth.

ODIN—The Odin and Sandoval Township Telephone Company. Capital stock, $600. Incorporators, A. J. McClelland, George Ross, R. R. Glines.

PETERSBURG—The Egan Electric & Telephone Manufacturing Company. Capital stock, $100,000. Incorporators, Charles E. Egan, John S. Hurie, T. W. McNeely.

ROCKFORD—The Rockford and Interurban Long Distance Telephone Company. Capital stock, $30,000. Incorporators, John Camlin, Edward W. Brown, T. M. Ellis.

SPRINGFIELD—Articles of incorporation have been filed with the secretary of state for the Killbuck Telephone Company of Monroe. Capital stock, $1,500. Incorporators, A. Thompson, E. A. Foster, C. A. Sauber.

BETHALTO—The Morrow Bethalto Telephone Company. Capital stock $28,000. Incorporators: William Montgomery, C. E. Stahl, A. H. Smith. The purpose of the company is to operate a rural telephone system.

INDIANA.

INDIANAPOLIS—The Independent Telephone Company of Jefferson county. Capital stock, $500.

PLAINVILLE—The Plainville Telephone Company. Capital stock, $2,500. L. E. Killion is one of the directors.

PATRIOT—The Farmers' Mutual Telephone Company has filed articles of incorporation with the secretary of state. Capital stock, $5,000.

INDIANAPOLIS—The Independent Telephone Company of Lancaster and Monroe townships. Capital stock, $500. Incorporators, J. W. Rector, J. B. McConnell.

JEFFERSONVILLE—Articles of incorporation of the Independent Telephone Company of Jeffersonville have been filed with the secretary of state at Indianapolis. Capital stock, $500.

IOWA.

MOVILLE—West End Toll Line Company. Capital stock, $25,000.

ALVORD—The Alvord Telephone Company. Capital stock, $500. Incorporators Aug. Berg.

WEBB—The Webb Telephone Company. Capital stock, $10,000. Incorporators, U. D. Fisk and others.

DES MOINES—The Walker Telephone and Telegraph Company. Capital stock, $10,000. Incorporators, William Trevor and others.

MILO—The Milo & Sandyville Telephone Company. Capital stock, $1,000. President, C. F. Spurgin; secretary, E. C. Polson.

BREMER—The Bremer and Black Hawk Mutual Telephone Association. Capital stock, $10,000. Incorporators, D. G. Boomer and others.

AMES—The West Milford Farmers' Telephone Company. Capital stock, $3,000. The officers are as follows: President, Frank D. Smith; vice-president, Lee Smith; secretary, C. F. Ruth; treasurer, E. Livingston, all of Ames.

LIME CITY—The Lime City Telephone Company has been organized at this place and the following officers elected: President, Joe Barclay; vice-president, Ed Proctor; secretary, Geo. Zesinger; treasurer, Will Straub; directors, John Barclay, Herman Martin, Julius Tortsen.

WATERLOO—The Corn Belt Telephone Company. Capital stock, $300,000. President, A. T. Averill; vice-president, C. W. Chapman; secretary, S. S. Lichty; treasurer, W. J. French; directors, A. T. Averill, George D. McElroy, H. B. Boles, G. W. Dawson, John S. Broeksmit, C. W. Chapman, J. H. Shoemaker.

KANSAS.

GARDEN CITY—The Garden City Telephone Exchange.

MARVIN—The Citizens' Telephone Company. Capital stock $1,000.

TIPTON—The Tipton Telephone Company. Capital stock, $3,500.

HARPER—The Western Rural Telephone Company. Capital stock, $600.

BARNARD—The Farmers' Mutual Telephone Company. Capital stock, $2,500.

ST. JOHN—The Green Ridge Mutual Telephone Company. Capital stock, $1,200.

STOCKTON—The Stockton and Ash Creek Telephone Company. Capital stock, $2,000.

WELLINGTON—Mutual Telephone Engineering & Supply Company. Capital stock, $5,000. Incorporators, R. W. Kemp, F. M. Kemp, W. K. Kise, Will Warren, M. B. Pile.

COLUMBUS—The Columbus Local Telephone Company, a branch of the Cherokee County Mutual Telephone Company, has been incorporated with a capital stock of $6,000.

MAINE.

KITTERY—International Rungeophone Company. Capital stock, $6,000,000. President, Horace Mitchell, Kittery; treasurer, S. J. Morrison, Portsmouth, N. H.

MARYLAND.

MAPLEVILLE—The Mapleville Telephone Company. Capital stock, $1,000. Incorporators, Jos. Fahrney, B. F. Foltz, Caleb Long and others.

MICHIGAN.

CHELSEA—The Chelsea & Francisco Telephone Company. Capital stock, $2,000.

HOLTON—The Holton Rural Telephone Company. Capital stock, $5,000. Incorporators, Herbert O'Connor and others.

MINNESOTA.

MINNEISKA—The Valley Telephone Company. Capital stock, $5,000. President, Frank Hartman; vice-president, Fred Zimmerman; secretary and treasurer, M. A. Callahan.

DEERWOOD—The Deerwood and Bay Lake Telephone Company has been organized by A. N. Gray, David Archibald and A. A. Miller of Bay Lake, and H. J. Hagne and O. C. Coffin of Deerwood.

INTERNATIONAL FALLS—International Telephone Company. Capital stock, $50,000. Incorporators, E. W. Backus, W. F. Brooks, L. Horr, C. J. Rockwood, Minneapolis; H. V. Winchell, Butte, Mont.

DONNELLY—The Donnelly Telephone Company has been organized and the following officers elected: President, S. H. Davis; vice-president, C. R. Sather; secretary, J. G. Whittemore; treasurer, F. J. Laughlin.

GRANITE FALLS—The Granite Falls Telephone Company. Capital stock, $50,000. Incorporators, D. A. McLarty, N. H. Schjelderup. K. E. Neste, O. H. Sorlien, B. O. Loe, C. A. Bennett, B. E. Nelson, and Olaus Lende. Stony Run.

MISSOURI.

NOVELTY—A co-operative telephone company has been organized at this place with a capital stock of $500.

MILAN—The Milan Telephone Company. Capital stock $2,000. Incorporators: J. C. Belshe, Ada L. Belshe, and others.

ADVANCE—The Carter Valley Telephone Company. Capital stock, $3,000. Incorporators, J. B. McKee, C. A. Schonhoff, J. W. Watkins.

PRAIRIE HOME—The Farmers' Telephone Company of Prairie Home. Capital stock, $3,000, all paid. Incorporators, William H. Ellis, Louis Ehardt, Theodore Brandes Sr., D. W. Hunt, R. P. Eubank, and Walter Barron.

NEBRASKA.

FULLERTON—The Council Creek Telephone Company.

LOUP CITY—The Sherman County Telephone Company. Capital stock, $50,000.

WOOD LAKE—The Wood Lake Independent Telephone Company. Capital stock, $3,000. President, David Hanna.

NEW HAMPSHIRE.

CHICHESTER—Articles of incorporation for the Chichester Telephone Company have been filed with the secretary of state. Capital stock, $3,000.

NEW JERSEY.

ERMA—The Citizens' Local Telephone Company. Capital stock, $10,000. Incorporators, Edward A. Wells, H. J. Fleischhauer, John W. DeHersey, H. V. Soults and others.

HAMMONTON—The Hammonton Telephone and Telegraph Company. Capital stock, $125,000. Incorporators, Andrew J. Rider, Samuel Anderson, Marcellus L. Jackson, Richard J. Byrne, L. Frank Horne, all of Hammonton.

NEW YORK.

SOUTHPORT—The Southport Telephone Company. Capital stock, $2,500. Incorporators, Wisner J. Roy, W. G. Samburger, Southport; E. H. Joraleman.

NEW KINGSTON—The New Kingston Telephone Company. Capital stock, $500. Directors, E. D. O'Connor, Henry Ruff, W. T. Falkner, New Kingston.

SKANEATELES—The West Lakeside Telephone Company. Capital stock, $15,000. Directors, W. C. Hatch, Calvin Luyster, J. I. Fisher, Skaneateles.

MT. VERNON—The Mt. Vernon Telephone Company. Capital stock, $5,000. President, C. W. Mansur; treasurer, R. W. Leighton, all of Mt. Vernon.

MT. STERLING—The Home Telephone Company. Capital stock $15,000. Incorporators: W. H. Alkire, N. A. Riggin, G. M. Fisher, H. L. Cook, T. S. Alkire.

DOVER PLAIN—The Dover Local Telephone Company. Capital stock, $400. Directors, Sanford Hoag, Charles Hoag, Pawling; Fred Colman, Wing Station.

PLAINVILLE—The Plainville Telephone Company. Capital stock $2,000. Incorporators: William B. Cox, Melta S. Wilson, Enos Smith and others, Plainville.

CANNONSVILLE—The Rock Rift, Cannonsville and Granton Telephone Company. Capital stock, $260. Incorporators, D. C. Gregory, L. H. Owens, R. K. Palmerters, all of Cannonsville.

GRAND RAPIDS—The Grand Rapids Mutual Telephone Company. Capital stock $10,000. Incorporators: L. E. Carson, George H. Clantz, E. A. Hall, John McLain, L. S. Abbott and others.

ROME—The Wire and Telephone Company of America. Capital stock, $600,000. Incorporators, James Dyett, Herbert T. Dyett, Rome, N. Y.; Stephen C. Houghton, Syracuse; Oliver Shiras, New York.

UNION SPRINGS—The Woodworth Telephone & Telegraph Company. Capital stock, $15,000. Directors, Henrietta Woodworth, O. J. Spencer, A. M. Sekell, Charles M. Hart, Michael McGrath, Lacerne Dorimus.

TRACY CREEK—The Tracy Creek Telephone Company. Capital stock, $10,000. Directors, L. A. Mason, George Morton, Alex. Webster, B. C. Plough, Fred Wood, F. D. Brummer, Orrin Knight, all of Tracy Creek.

ALBANY—The Oneida County Rural Telephone Company. Capital stock, $7,500. Directors, E. D. Jones, J. B. Fuller of Stillwell, Ira G. Wells, John G. Jones, E. Willard Jones of Holland Patent, G. D. Thomas and Floyd and Ellis Lewis of Steuben.

NEW YORK—Mercantile Burglar Alarm Company. Capital stock, $3,000. Incorporators, Townsend H. Boardman, Joseph J. Young, William B. Sheppard, William L. Kitchell, Archibald A. Yulick, William H. Darrow, Charles W. Pierson, 120 Broadway, New York.

NORTH CAROLINA.

SHELBY—The Sharon Telephone Company of Sharon, Cleveland County. Capital stock authorized, $3,000; paid in, $900. Incorporators, J. W. Bowen, B. B. Blantan, J. P. Barnet of Shelby and others.

NORTH DAKOTA.

LITCHVILLE—The Litchville Rural Telephone Company. Capital stock, $12,000. Incorporators, J. M. Olson and others.

OHIO.

SHELBY—The Shelby Telephone Company. Capital stock, $60,000. Incorporators, Edwin Mansfield, J. F. Laning, G. M. Skiles, T. J. Green, Harry Sotzen.

ROCK CREEK—The Citizens' Telephone Company. Capital stock, $4,800. Incorporators, C. W. Harrington, R. W. Covell, C. E. Andrews, G. H. Roy, E. R. Mills.

WAUSEON—The Western Ohio Telephone Company. Capital stock, $10,000. Incorporators, J. T. Daniels, H. J. Brown, James Niven, J. A. Adams, W. J. Truex.

LOWELL—The Lowell Farmers' Telephone Exchange. Capital stock, $10,000. Incorporators, Jerry Swain, J. M. Merritt, Charles Schimmel, H. H. Gessell, and Cy Mincks.

NEW LEXINGTON—The Perry County Telephone Company. Capital stock, $35,000. Incorporators, John Amberge, T. M. Potter, Henry Steffin, M. E. Joyce, J. A. Wright.

MORRISTOWN—The Morristown Telephone Company. Capital stock, $3,000. Incorporators, R. M. Eatin, W. T. McCreary, John Jeffrey, A. C. Orrison, William Shepherd.

WATERVILLE—The Citizens' Telephone Company. Capital stock, $50,000. Incorporators, Delmar J. Farnsworth, Elisha B. Southard, George S. Moss, C. H. McDonough, W. C. Rowe.

MORGANSVILLE—The Morgansville Telephone Company. Capital stock, $50,000. Incorporators, Jackson Jones, W. J. Warne, J. C. Glass, H. F. Carter, H. V. Torbert, A. E. Brosie.

HOLLAND—The Holland Home Telephone Company. Capital stock, $5,000. Incorporators, Harry W. Lloyd, Edgar C. Hampton, John A. Belford, James R. Kerper, Harry E. Duguid.

OKLAHOMA.

ORLANDO—The Fairview Telephone Company. Capital stock, $540. Incorporators, William D. Gish, R. Grant, John L. Winkler.

NASHVILLE—The Nashville Rural Telephone Company. Incorporators, W. C. Eddy, R. E. Bailey, F. Dial, J. E. Lemon of Nashville, C. E. Pendleton of Pond Creek.

AGRA—The Cushing and Agra Rural Telephone Company. Capital stock $3,000. Directors, E. T. Hensley, W. T. Gooch, F. H. Rheim, V. H. Newton, S. C. Brigham, A. H. Swanson.

MULHALL—The Oklahoma Farmers' Telephone Company. Capital stock, $6,000. Incorporators, E. P. Wilkerson, W. M. Hatfield, A. G. Childress, of Mulhall; H. M. Ferguson of Guthrie.

HARRAH—The Harrah Rural Telephone Company. Capital stock $5,000. Incorporators: Karl Haas, Marion E. Platt, of Harrah; J. W. Stephens, R. M. Proffitt and W. G. Henderson, of McLoud.

OREGON.

PORTLAND—The Home Telephone & Telegraph Company. Capital stock, $3,000,000. Incorporators, Charles Sumner, Albert Andrews, and A. King Wilson.

TOLEDO—The Yaquina Bay Mutual Telephone and Improvement Company. Capital stock, $3,000. Incorporators, A. J. Warnock, A. T. Peterson, I. J. Penin, P. A. Miller, M. S. Dickinson.

SOUTH DAKOTA

NORTHVILLE—The Northville Telephone Company. Capital stock, $25,000.

PIERRE—The Coast Line Telephone Company. Capital stock, $10,000,000.

IPSWICH—The Northwestern Mutual Telephone Company. Capital stock, $15,000.

PLANKINTON—The Firesteel Telephone Company. Capital stock, $20,000. Incorporators, J. D. Donagan, W. A. Noland, and others.

TENNESSEE.

LAFOLLETTE—The LaFollette Water, Light and Telephone Company. Capital stock, $150,000. Incorporators, N. C. Hubbard, J. P. Achenz and Frank Cox of Wheeling, W. Va.

NASHVILLE—The Big Buck Telephone Company of Greene County. Capital stock, $200. Incorporators, Cleveland Justice, Samuel Malone, George Neal, J. F. Brown, G. P. Weems.

TEXAS.

TEHUACUNA—The People's Telephone Company. Capital stock $2,500. Incorporators: Joe Peoples, J. Desenberry, and A. L. Collins.

SNYDER—The Snyder Telephone Company. Capital stock $5,000. Incorporators: S. J. Helena, J. G. Cormack, Oles Stofer, Fred T. Switzer, J. C. McClintic.

VERMONT.

RUTLAND—The Rutland County Telephone & Telegraph Company. Capital stock, $10,000.

LAWRENCEVILLE—The Brunswick Mutual Telephone Company. Capital stock: maximum, $25,000; minimum, $10,000. President,

L. J. Raney; vice-president, I. E. Spatig; secretary-treasurer, F. W. Davie, all of Lawrenceville.

VIRGINIA.

LAWRENCEVILLE—The Brunswick Mutual Telephone Company. Capital stock, $25,000.

PALMYRA—The Virginia Central Telephone Company. Capital stock, $5,000. President, C. E. Jones; secretary, L. O. Hudson; treasurer, W. Sclater.

VESTA—The Ballard Telephone Company of Ballard. Capital stock, $5,000. President, E. J. Hylton; secretary, treasurer and general manager, J. E. Hylton, both of Vesta.

SCOTTSBURG—The Scottsburg-Houston Telephone Company has been organized with J. T. Lacy president and R. A. Walden secretary. The full amount of stock has been taken and work will begin at once.

COURTLAND—The Southampton Telephone Company. Capital stock, $5,000. President, secretary, and treasurer, T. A. Saunders, Ivor, Va.; vice-presidents, F. P. Pulley, Ivor, Va.; W. N. McAuge, Suffolk, Va.; L. H. Brantley, Berlin, Va.

WEST VIRGINIA.

CAMERON—Farmers' Mutual Telephone Company. Capital stock, $10,000. Incorporators, R. A. Funk and associates.

BRIDGEPORT—The Bridgeport Telephone and Telegraph Company has been organized and the following officers elected: President, W. K. Thompson; secretary and treasurer, A. J. Williams; general manager, Newton Brooks.

PARKERSBURG—The Rockport and Parkersburg Telephone Company. Capital stock, $25,000. Incorporators, A. F. Morriston and E. L. Melrose of Mineral Wells; W. H. Cooper of Saulsbury; George A. Grimes and Fritz Ludwi of Fountain Springs.

WISCONSIN.

MILWAUKEE—The Buckeye Ridge Telephone Company. Capital stock, $1,500. The place of business is not given.

BLOOMINGDALE—The Buckeye Ridge Co-operative Telephone Company of Bloomingdale. Capital stock, $1,500. Incorporators, S. W. Mosshold, Isaac Post, W. A. Lewis, Phil Appleman, Wm. Pierce.

GRAND RAPIDS—The Grand Rapids Wood County Mutual Telephone Company. Capital stock, $10,000. Incorporators, L. E. Carson, G. H. Clatz, E. A. Hall, John McLain, L. S. Abbott, A. W. Mafus, Herman Greaf.

WYOMING.

LUSK—The Rawhide Telephone Company. Capital stock, $5,000. President, J. W. Agner; secretary, H. C. Snyder; treasurer, William Reynolds.

ANNUAL MEETINGS.

ILLINOIS.

SANDWICH—At the annual meeting of the Northern Illinois Telephone Company recently held in this city the old officers and directors were re-elected as follows for the ensuing year: President, F. S. Mosher; vice-president, J. N. Antoine; treasurer, C. S. Sedgwick; secretary and general manager, E. C. Hennis; directors, F. S. Mosher, Justin Latham, M. D. Patten, E. A. Manchester, C. S. Sedgwick, of Sandwich; J. N. Antoine of Somonauk, Geo. Hicks of Paw Paw, Wm. Von Ohlen of Hinckley and L. I Taylor of Earlville.

IOWA.

ELDORA—The Eldora Mutual Telephone Company recentiy held its annual meeting at this place and elected the following directors for the ensuing year: J. D. Newcomer, Thomas Larson, H. A. Huff, N. R. Van Avery, Charles Moser, C. F. Stauffer, George E. Diehl.

KANSAS.

PAXICO—The stockholders of the Paxico Telephone Company recently held their annual meeting at this place and elected the following officers and directors for the following year: President, Wm. Strowig; vice-president, John Hund; treasurer, Wm. Breymeyer; secretary, O. E. Webb; directors, Wm. Strowig, Wm. Breymeyer, John Hund, A. E. True, Wm. Miller.

WINFIELD—At a recent meeting the stockholders of the Winfield Telephone Company elected the following officers for the ensuing year: President, J. E. Jarvis; vice-president, W. G. Francis; treasurer, J. F. Hemenway; secretary and general manager, W. H. Caman; directors, J. E. Jarvis, Joseph J. Brady, W. H. Caman, John F. Hemenway, J. H. Montague, R. V. Montague, W. G. Francis.

MARYLAND.

CHARLOTTE HALL—The stockholders of the Southern Maryland Telephone Company have elected the following officers: President, J. F. Coad; vice-president, J. B. Ballenger; secretary and treasurer, L. J. Canter; directors, Zacariah R. Morgan, George M. Thomas.

MINNESOTA.

ST. PETER—At its annual meeting the Nicollet County Telephone Company elected the following officers: President, M. P. Quist, of New Sweden; vice-president, M. B. Johnson, St. Peter; secretary, James Bennett, St. Peter; treasurer, P. A. Retrum, Lafayette.

EMMONS—The Emmons Telephone Company has elected the following directors: H. H. Emmons, C. P. Marpem, Chris Steele, John Reim, Otto Klukow, K. A. Overland, Isaac Larson. Mr. Emmons was chosen secretary. The company has 197 telephones in service.

WATERTOWN—The Watertown Telephone Company recently held its annual meeting at this place and elected the following officers for the ensuing year: F. A. Barth, O. J. Bleedorn, Guy E. Halgren, R. J. Burke, F. L. Williams, C. G. Johnson, A. G. W. Anderson, Levi Johnson, S. L. Anderson, Albert Grife, L. A. Klock.

NEBRASKA.

LINCOLN—The Lincoln Telephone Company has elected the following officers: President, F. H. Woods; vice-president, A. W. Field; secretary-treasurer, W. E. Sharp; directors, C. J. Bills, Samuel Meyer, John F. Dorgan, Mark W. Woods, A. C. Ricketts, George J. Woods, A. W. Field, W. E. Sharp, F. H. Woods.

AINSWORTH—At the anual meeting of the stockholders of the Keya Paha and Brown County Telephone Company the following officers were elected: President, Chas. Hinneman; vice-president, Frank Sellors; secretary, F. A. Baldwin; treasurer, R. E. Jones; directors, F. T. Brewster, Wm. Slonecker and W. H. Williams.

STOCKVILLE—The Frontier County Telephone Company held its annual meeting at this place recently and elected the following officers for the ensuing year: President, R. D. Logan; treasurer, A. G. Hagadorn of Curtis; secretary, E. L. Hall; directors, C. B. Chamberlain, Dr. E. S. Case, T. M. Hull, M. T. Ward, L. H. Cheney.

NEW YORK.

NORTH HANNIBAL—The North Hannibal Telephone Company has elected the following officers: President, Ralph Stark; treasurer, Edwin Pearce; secretary, C. S. Lockwood.

THOMSON—The annual meeting of the stockholders of the Northwestern Pennsylvania Telephone Company was held in this city recently and the following directors elected for the coming year: J. W. Tiffany of Poynbell; Dr. Bortrie, Winwood; Frank Benton of Jackson; F. J. Osgood of Forest City, and Henry Weideman of Uniondale.

CANADAIGUA—The People's Telephone Company held its annual meeting at this place and elected officers as follows for the ensuing year: President, H. W. Blake, Naples; vice-president and general manager, John Litzendorf, Honeoye; secretary, George H. Hemanway, Naples; directors, D. O. Pierpont, Richmond; E. Chapin Church, Canadaigua; R. B. Abbey, Richmond.

GREENE—A meeting of the Broome-Chanango Telephone Company was recently held in this city and the following officers and directors elected: President, J. D. VanValkenburgh; vice-president, Mason Hallenbeck; secretary and treasurer, George M. Webb; directors, J. D. Van Valkenburg, Frank Cooper, A. M. West, Mason Hallenbeck, George M. Webb, R. P. Bunnell, W. H. Powers.

NORTH DAKOTA.

HILLSBORO—At the annual meeting of the stockholders of the Traill County Telephone Company the following officers were elected for the coming year: President, A. T. Kraabel; vice-president, A. G. Foogman; secretary and treasurer, John Carmody; directors, John Carmody, A. G. Foogman, W. A. McCain, John E. Paulson, Andrew Knutson, A. T. Kraabel, Arthur Edmonds.

SOUTH DAKOTA.

WITTENBERG—At the annual meeting held recently the stockholders of the Wittenberg Telephone Company elected the following officers: President, S. S. Rames; secretary, Dr. M. H. Clagett; treasurer, Andrew Orth; directors, Newton Shiley, James Brown, Fred H. Mettler, Jr.

TENNESSEE.

VALE—The Dixie Telephone Company has elected the following officers: President, H. A. Liles; vice-president, Dr. J. E. Florence; secretary and treasurer, A. N. Presson.

VIRGINIA.

FRONT ROYAL—The Royal Telephone Company recently held its annual meeting and elected officers as follows: President, S. G. Allen; vice-president, J. L. Borden; secretary-treasurer, G. W. Forsyth; general manager, O. Harrell; superintendent, C. W. Tienary.

VERMONT.

PITTSFORD—The Pittsford Telephone Company held its annual meeting in this city and elected officers as follows: President, S. K. Burbank; secretary and treasurer, A. D. Tiffany; auditor, Asher Burditt.